

Memorandum

To: Honorable Mayor and City Council

Cc: Mike Beimer, Sue Ripke

From: Daniel Boggs, P.E.

Date: July 3, 2014

Re: Traffic Signals, Intersection of First Street and First Avenue (IA Hwy 1)

Construction Progress thus far:

All four existing signal poles removed
Intersection sidewalk removed
All necessary electrical conduits beneath street pavement has been installed
8 rented temporary signals are operating at the intersection

Submittal and Approval progress thus far:

Topography field work and drafting work completed
Geometrics, grades, site plan design approximately 75% complete
Application for Agreement For Approval of a Traffic Control Device submitted to IDOT
Plan sheets and cut sheets submitted by the Traffic Engineer retained by the City
Initial correspondence received from IDOT

I am continuing with intersection site design with the following assumptions regarding scope:

2 Completely reconstructed sidewalk corner returns which conform as close as possible to American With Disabilities Act requirements

2 New P.C.C. Paver Brick crosswalks across First Street
Painted Pedestrian Crosswalks

4 new traffic signal poles which will include pedestrian crossing signals

The existing controls and control cabinet will be reused

There will be two separate contracts or projects, one for the signal installation, and one for the concrete reconstruction work, including the P.C.C. Paver crosswalks.

There will be a public closed bid process

The Traffic Engineer has progressed to a point where decisions need to be made from the City, and approvals need to be received from IDOT before he can progress any further.

For safety reasons the IDOT Office of Traffic and Safety has recommended that signal poles with mast arms be constructed rather than the pedestal pole type installation which have been proposed. This equipment would have a longer lead time and will be more expensive to purchase and install. At this point, this is a recommendation, not a requirement.

There may be funding help available from the Traffic Safety Improvement Program (TSIP) funding source. Applications are due by August 15th, decisions will be made later this fall and the awards will be awarded late this fall. Any IDOT funding participation will require a mast arm type installation.

With a TSIP funding assistance type scenario, signal installation will not occur until next spring.

If the single pedestal type installation were allowed by the IDOT Office of Traffic and Safety and also preferred by the City Council, the signal installation progress could proceed more rapidly.

I am proceeding with the assumption that the basic concrete site work progress is independent of the signal installation progress as long as the proposed signal pole locations are known.

These basic project parameters should be ranked:

- Safety
- Timeliness of Project Progress
- Cost
- Aesthetics

This may help with the decision for the proffered course of action



Iowa Department of Transportation

AGREEMENT FOR APPROVAL OF A TRAFFIC CONTROL DEVICE

Four copies of application and sketch must be filed with the Office of Traffic Engineering and Safety Iowa Department of Transportation Ames, Iowa

County Linn

Applicant City Of Mount Vernon, Iowa
Name of Governmental Authority

Approval is requested for authority to install and maintain a traffic control device at the following location:

N 1st Avenue (IA Hwy. 1) and 1st Street.

THE APPLICANT UNDERSTANDS THAT THE TRAFFIC CONTROL DEVICE MUST COMPLY WITH THE REQUIREMENTS OF THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, IOWA DEPARTMENT OF TRANSPORTATION. THE APPLICANT ASSUMES RESPONSIBLY FOR THE OPERATION OF THE TRAFFIC CONTROL DEVICE. THE APPLICANT ALSO ASSUMES ALL COSTS FOR ELECTRICITY, MAINTENANCE, AND REPLACEMENT FOR THE ABOVE TRAFFIC CONTROL DEVICE.

Attach (to all copies of the application) a drawing of the proposed installation. Drawing to be complete, showing location of traffic control device in relation to sidewalks, driveways, streets, etc.

Show extra indications such as pedestrian "Walk-Don't Walk", etc., in detail on proposed installation drawing.

OPERATION

The traffic control shall function as follows: The signal replaces an existing traffic signal that was damaged. The new signal will operate with 2-phase control. The new signal also adds pedestrian countdown heads and pushbuttons. The signal is pre-timed.

Refer to the plan sheets for additional information.

By [Signature] Name City Engineer Title (Mayor, Clerk, or Engineer) 6/23/2014 Date

NOTE: The signal installation must have final inspection and approval by the Iowa Department of Transportation before being placed in operation. Please notify the State Traffic Engineer, Office of Traffic Engineering and Safety, Iowa Department of Transportation, Ames, Iowa, one (1) week before signal turn on.

AUTHORIZATION

Approval is granted, subject to the conditions and restrictions set forth herein, for the installation of a traffic control device at the location described above.

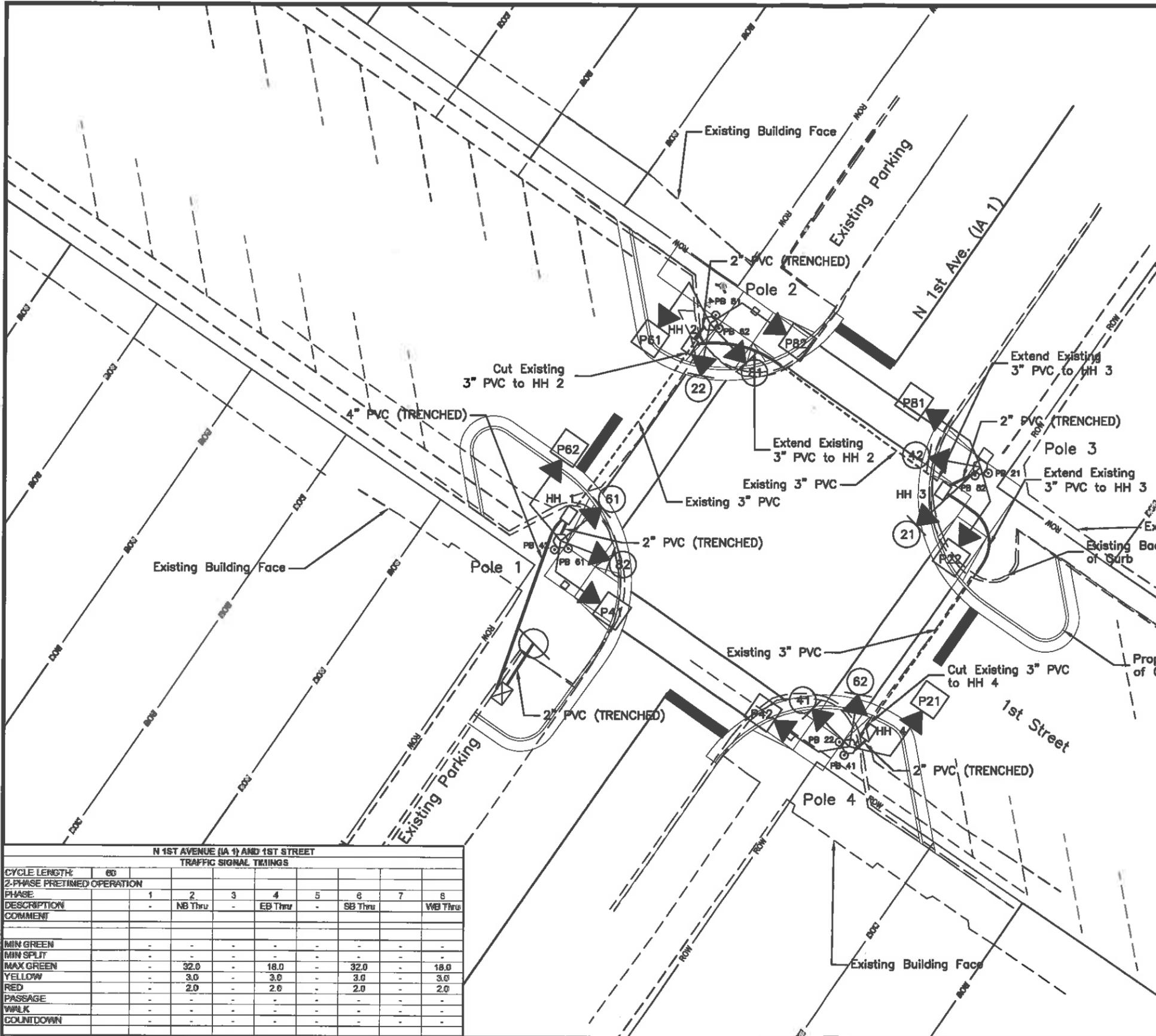
CONDITION AND/OR RESTRICTIONS _____

THE IOWA DEPARTMENT OF TRANSPORTATION RESERVES THE RIGHT TO:

- (1) Require the removal of such traffic control device upon thirty days' written notice. Either lack of supervision, inadequate enforcement, unapproved operation, or intolerable congestion shall be considered sufficient reason to require removal.
- (2) Revoke and annul the issued permit if the installation is not in operation within eighteen (18) months after date of approval.

Name _____ Date _____
State Traffic Engineer,
Iowa Department of Transportation

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Notes:
Use existing 3\"/>

Extend existing 3\"/>

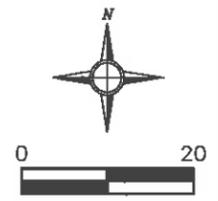
All handholes are 24\"/>

Power to come from existing pole near controller. Mount service disconnect and meter on controller cabinet per local utility requirements. Coordinate with utility for power connection. Contractor to supply all materials as required by the local utility and install those portions normally installed by the power customer, per the utility's requirements.

Refer to SUDAS Standard Details 8010.101 Cabinet Footing Details, 8010.102 Pole Footing Details, 8010.103 Conduit and Handholes, and 8010.106 Pedestal Pole and Pedestrian Post Details.

Refer to SUDAS Standard Specifications 8010 Traffic Signals.

The traffic signal shall operate as a pre-timed signal - No Detection. Pedestrian pushbuttons shall be solid state (Non-APS). Use the City's existing traffic signal controller. Battery Backup system is not required.

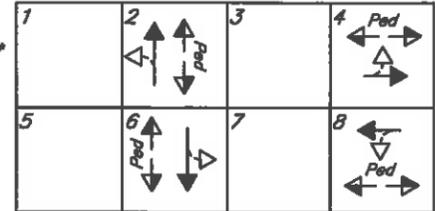


SIGNAL PHASING

SIGNAL INDICATIONS*
All Signal Indications Shall be LED*



P21, P22
 P41, P42
 P61, P62
 P81, P82
 ALL OTHERS



TRAFFIC SIGNAL LEGEND

- TRAFFIC SIGNAL HEAD W/ BACKPLATE
- PEDESTRIAN HEAD
- MAST ARM AND BASE
- PEDESTAL
- SIGNAL CABINET
- 24" x 36" HANDHOLE
- CONCRETE HANDHOLE
- PLASTIC HANDHOLE
- VEHICLE DETECTOR LOOP
- PEDESTRIAN PUSH BUTTON
- SERVICE ORIGIN
- PVC TRAFFIC SIGNAL CONDUIT
- HDPE CONDUIT
- SIGN
- COMBINATION STREETLIGHT
- WIRELESS ACCESS POINT
- WIRELESS DETECTOR

N 1ST AVENUE (IA 1) AND 1ST STREET								
TRAFFIC SIGNAL TIMINGS								
CYCLE LENGTH:	60							
2-PHASE PRETIMED OPERATION								
PHASE	1	2	3	4	5	6	7	8
DESCRIPTION	-	NB Thru	-	EB Thru	-	SB Thru	-	WB Thru
COMMENT								
MIN GREEN	-	-	-	-	-	-	-	-
MIN SPLIT	-	-	-	-	-	-	-	-
MAX GREEN	-	32.0	-	18.0	-	32.0	-	18.0
YELLOW	-	3.0	-	3.0	-	3.0	-	3.0
RED	-	2.0	-	2.0	-	2.0	-	2.0
PASSAGE	-	-	-	-	-	-	-	-
WALK	-	-	-	-	-	-	-	-
COUNTDOWN	-	-	-	-	-	-	-	-

Client: City of Mount Vernon
213 First Street NW
Mount Vernon, Iowa 52314
Phone: (319) 895-0880

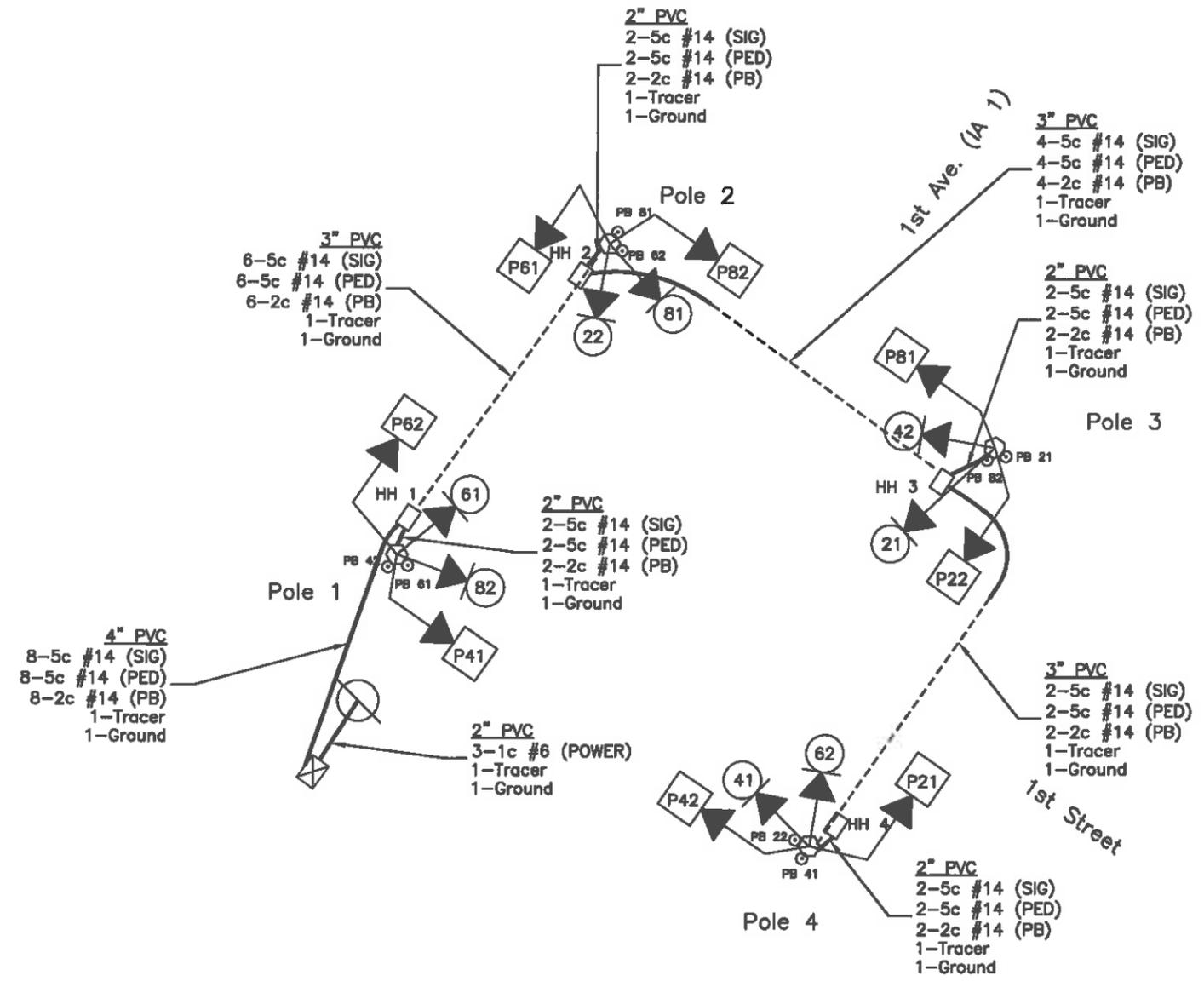
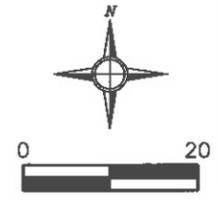


Drawn By: JCM
Date: 06/20/14
Project No. 214053
Approved By: JCM
Scale:

1st Avenue (IA 1) and
1st Street Traffic Signal

Traffic Signal Plan

SHEET NO.
OF
N.01
N.02

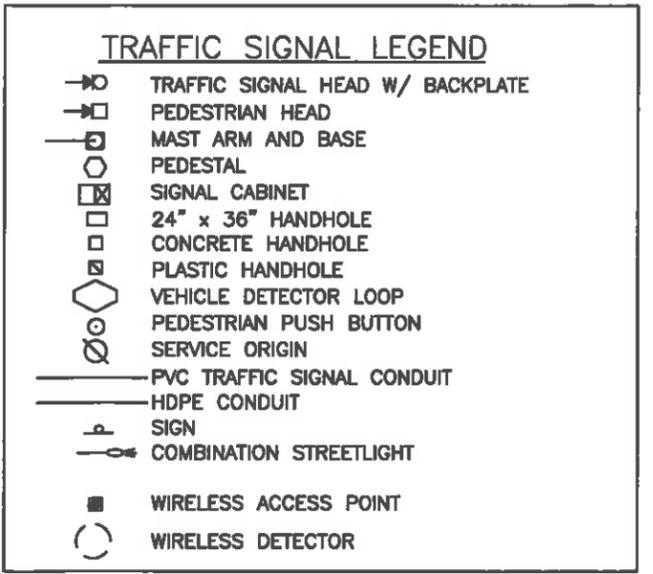
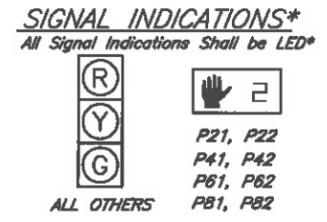


Notes:
 Use existing 3" conduits as constructed.

Extend existing 3" conduits to new handhole locations as needed.

All handholes are 24"x36" preformed polymer concrete with bolt down lids.

Power to come from existing pole near controller. Mount service disconnect and meter on controller cabinet per local utility requirements.



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NO.	REVISION DESCRIPTION	APPROVED	DATE

Client: City of Mount Vernon
 213 First Street NW
 Mount Vernon, Iowa 52314
 Phone: (319) 895-0880



Drawn By: JCM
 Date: 06/20/14
 Project No. 214053

Approved By: JCM
 Scale:

1st Avenue (IA 1) and
 1st Street Traffic Signal

Wiring Diagram

SHEET NO.
 OF N.02
 N.02

Dan Boggs

From: Jeff Morrow [jmorrow@anderson-bogert.com]
Sent: Wednesday, July 02, 2014 10:38 AM
To: 'Dan Boggs'
Cc: 'Mike Beimer'; 'Sue Ripke'; 'Jim Moore'
Subject: RE: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Hi Dan –

If you are wanting to go with the mast arm signals, then I would say it would be much cheaper to install some temporary wood poles and either run a temporary span wire signal or just set four wood posts and put two signal heads on each post. That would probably be the cheapest since you already have conduits in the ground we could probably use. Check with your signal contractor to confirm that. We should probably send a sketch plan to IDOT to get their blessing on the temporary signal before we build it.

Then we have time to do the mast arm layout, get it approved through IDOT, get a funding agreement with them to participate in the signal cost, put it out for bids this Summer/Fall and build it next Spring.

Let me know if you have any more questions or need additional information.

Thanks,

Jeff Morrow

ANDERSON  BOGERT

4001 River Ridge Drive NE, Cedar Rapids, IA 52402

jmorrow@anderson-bogert.com | <http://www.anderson-bogert.com>

319.377.4629 Office
319.361.0534 Cell
319.377.8498 Fax

From: Dan Boggs [mailto:dboggs@cityofmtvernon-ia.gov]
Sent: Wednesday, July 02, 2014 10:23 AM
To: 'Jeff Morrow'
Cc: 'Mike Beimer'; 'Sue Ripke'; 'Jim Moore'
Subject: RE: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Sorry, I should have known that.

From this information, I think we need to determine if it is worthwhile to get underground electric installed by Hawkeye as soon as possible to get signals installed that would still be temporary, but the expensive portable units could then be removed.

Are comfortable enough with the proposed signal pole locations that we can make this decision now, or do we need additional input from Ames?

From: Jeff Morrow [mailto:jmorrow@anderson-bogert.com]
Sent: Wednesday, July 02, 2014 10:13 AM
To: 'Dan Boggs'

Cc: 'Mike Beimer'; 'Sue Ripke'; 'Jim Moore'
Subject: RE: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Hi Dan --

The pole locations would remain the same as what I provided to IDOT. In that original plan we had 4 traffic signal pedestal posts with two signal heads on each post. If we go to mast arms, there would still be four signal posts, but they would have mast arms that extend out over the street and there would be one signal head on each post and the other signal head would move to the mast arm.

You have 8 temporary signals right now because each temporary signal can only support one signal head and you need two signal heads for each approach. Once we get the permanent installation in (either pedestal posts like you had before or mast arm poles as IDOT is suggesting) there will only be 4 pole locations, just like before. They will just either be pedestal posts like before or post and mast arms.

Let me know if you have any questions.

Thanks,

Jeff Morrow

ANDERSON  BOGERT

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jmorrow@anderson-bogert.com | <http://www.anderson-bogert.com>

319.377.4629 Office
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From: Dan Boggs [<mailto:dboggs@cityofmtvernon-ia.gov>]
Sent: Wednesday, July 02, 2014 9:51 AM
To: 'Jeff Morrow'
Cc: 'Mike Beimer'; 'Sue Ripke'; 'Jim Moore'
Subject: RE: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Do not proceed with mast arm design yet. I will contact Terry in Ames per what the City Council wants to install tempered with suggestions and see if the mast arm is a suggestion or requirement at this point.

My question now is, would mast arm poles change pole locations? Would mast arm poles eliminate the need for 4 of the 8 poles?

From: Jeff Morrow [<mailto:jmorrow@anderson-bogert.com>]
Sent: Wednesday, July 02, 2014 9:17 AM
To: dboggs@cityofmtvernon-ia.gov
Subject: FW: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Hi Dan --

I just wanted to touch base with you on this. Going to mast arm poles could add a lot of lead time to the project for materials. Maybe even as much as 6 months. It will also increase the project cost, but it looks like IDOT would be willing to pay for part of the signal installation. We would definitely have to go through a bid letting if we use IDOT funds.

I could look at the crash data they are citing and see if there is a statistically significant crash rate. From a safety perspective, visibility is generally better with mast arm signals. However, I don't know if the City feels that it would adversely affect the aesthetics of the downtown. As far as the crashes with obscured visibility, the City could trim some of the street trees on the intersection approaches to make sure the signals are more visible. The other thing we could offer IDOT is to install a warning beacon at the existing signal ahead signs that would flash yellow when the signal faces on Highway 1 are yellow or red. It takes some more wiring, but IDOT may allow that versus mast arm poles.

How would you like me to proceed? Design the signal for mast arm poles or try to work out a compromise with IDOT and keep the pedestal poles?

Thanks,

Jeff Morrow

ANDERSON  BOGERT

4001 River Ridge Drive NE, Cedar Rapids, IA 52402

jmorrow@anderson-bogert.com | <http://www.anderson-bogert.com>

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319.361.0534 Cell

319.377.8498 Fax

From: Lohrer, Chad [DOT] [<mailto:Chad.Lohrer@dot.iowa.gov>]

Sent: Wednesday, July 02, 2014 8:36 AM

To: City Mount Vernon

Cc: 'Jeff Morrow'; Matulac, David [DOT]; Crouch, Tim [DOT]; Ostendorf, Terry [DOT]

Subject: RE: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Good morning Dan-

I asked our Office of Traffic and Safety (OT&S) to review these attachments and it seems that due to the crash history at this location, there are a few recommendations. The crash history shows 27 crashes in the last 10 years with 17 of them being "Ran Traffic Signal", "Fail to yield on left turn", or "Vision Obstructed". Because of this, OT&S recommends installing the signal heads on mast arms instead of pedestal poles.

It was also mentioned that the City can apply for TSIP (Traffic Safety Improvement Program) funds to possibly help pay for a portion of the installation. Applications are due August 15, 2014. For additional information about the program, you can contact Terry Ostendorf or click on the link: <http://www.iowadot.gov/tsip.htm>.

I hope that this information is useful and we will wait for your review/response. Thanks and have a great 4th!!

☺

Take care...



Chad Lohrer / District 6 Traffic Technician

From: Dan Boggs [<mailto:dboggs@cityofmtvernon-ia.gov>]

Sent: Monday, June 23, 2014 9:36 AM

To: Lohrer, Chad [DOT]

Cc: 'Jeff Morrow'

Subject: Agreement for Approval of a Traffic Control Device, IA Hwy 1 and First Street, Mount Vernon, Iowa

Chad;

Attached is an application for signal installation at the intersection of IA Hwy 1 and First Street.

Are you the proper recipient or should I send it directly to the Office of Traffic & Safety in Ames?