CITY HALL
33325 8th Avenue South
Federal Way, WA 98003-6325
(253) 835-7000
www.cityoffederalway.com
Jim Ferrell, Mayor

**ADDENDUM NO. 1**

**Citywide Adaptive Signal Control System – ITS Improvements – Phase 1 & 2 and Phase 3**

**RFB # 19-011**

**ATTENTION: All Bidders and Planholders**

You are hereby notified that in Addendum No. 1, the Bid and Contract Documents are amended as follows:

**A) PLANS**

**(1) Sheet 3, ITS02:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS02.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(2) Sheet 5, ITS04:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS04.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(3) Sheet 28, ITS41:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS41.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(4) Sheet 29, ITS42:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS42.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(5) Sheet 30, ITS43:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS43.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(6) Sheet 31, ITS44:**

DELETE this sheet and REPLACE with the attached revised Sheet ITS44.
This change provides additional details regarding the installation of the new electrical service cabinet to serve the traffic signal system and intersection lighting on the signal poles.

**(7) Sheet 48, TTC1:**

DELETE this sheet and REPLACE with the attached revised Sheet TTC1.
This change provides additional details regarding the temporary traffic control for sheet ITS44.

**(8) Sheet 69, TTC22:**

DELETE this sheet and REPLACE with the attached revised Sheet TTC1.
This change provides additional details regarding the temporary traffic control for sheet ITS44.

## B) CONTRACT DOCUMENTS

**(1) Request for Bids, Bid Schedule D (Page RFB-12):**

DELETE this page and REPLACE with the attached page.
Bid Schedule C remains unchanged. Bid Schedule D is revised to provide separate bid items for the hybrid radar/video detection camera and the cabinet interface unit.

**(2) Special Provisions, 1-02.6 Preparation of Proposal (Page SP-6):**

REVISE the subsection titled Alternative 2 to read:

**Alternative 2**

Alternative 2 is based on the supply of materials only for *additional hybrid radar/video detection units, beyond those included as part of the Base Bid, and include* the following:

- *Hybrid Radar/Video Detection Camera (Material Only)*
- *Hybrid Radar/Video Detection Cabinet Interface Unit (Material Only)*

The bid items for Alternative 2 are as listed in the bid proposal.

**(3) Special Provisions, 8-20.4 Measurement (Page SP-86):**

SUPPLEMENT this section with the following:

*"Hybrid Radar/Video Detection Camera (Material Only)" shall be measured per each.*

*"Hybrid Radar/Video Detection Cabinet Interface Unit (Material Only)" shall be measured per each.*

**(4) Special Provisions, 8-20.5 Payment (Page SP-87):**

SUPPLEMENT this section with the following:

*"Hybrid Radar/Video Detection Camera (Material Only)", per each.*
*The unit price for "Hybrid Radar/Video Detection Camera (Material Only)" shall be for the furnishing of materials only for each Iteris Vantage Vector detection unit and associated mounting equipment. The City of Federal Way may, at its sole discretion, elect to purchase additional hybrid radar/video detection cameras, beyond those included as part of the Base Bid, at the unit price.*

*"Hybrid Radar/Video Detection Cabinet Interface Unit (Material Only)", per each.*
*The unit price for "Hybrid Radar/Video Detection Cabinet Interface Unit (Material Only)" shall be for the furnishing of materials only for each Iteris Vantage Next cabinet interface unit. The City of Federal Way may, at its sole discretion, elect to purchase additional hybrid radar/video detection cabinet interface units, beyond those included as part of the Base Bid, at the unit price.*

**C) BID OPENING**

The bid opening date **has not** changed.

All bidders are required to acknowledge receipt of this addendum on page RFB-14 of the Bid Form. Failure to do so may cause rejection of the bid.

**CITY OF FEDERAL WAY**

Naveen G. Chandra, P.E.
Digitally signed by Naveen G. Chandra, P.E.
Date: 2019.10.16 09:22:00-07'00'

Naveen Chandra, P.E.
Senior Capital Engineer

| SCHEDULE C: CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS – PHASE 1 & 2 (ALTERNATIVE 1)<br>*All unit prices shall include applicable sales tax (Roadway Improvements)* | | | | | | |
|---|---|---|---|---|---|---|
| **Item No.** | **Spec. Div.** | **Bid Item Description** | **Unit** | **Plan Qty** | **Unit Price** | **Amount** |
| 1 | 8-20 | TRAFFIC SIGNAL SYSTEM, COMPLETE – S 324TH ST & SR 99 | LS | 1 | $ | $ |
| 2 | 8-20 | TRAFFIC SIGNAL SYSTEM, COMPLETE – S 320TH ST & 11TH PL S | LS | 1 | $ | $ |
| 3 | 8-20 | TRAFFIC SIGNAL SYSTEM, COMPLETE – S 348TH ST (SR 18) & ENCHANTED PKWY S (SR 161)/16TH AVE S | LS | 1 | $ | $ |
| | | | | | **TOTAL – SCHEDULE C** | $ |

| SCHEDULE D: CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS – PHASE 1 & 2 AND PHASE 3 (ALTERNATIVE 2)<br>*All unit prices shall include applicable sales tax (Roadway Improvements)* | | | | | | |
|---|---|---|---|---|---|---|
| **Item No.** | **Spec. Div.** | **Bid Item Description** | **Unit** | **Plan Qty** | **Unit Price** | **Amount** |
| 1 | 9-29 | HYBRID RADAR/VIDEO DETECTION CAMERA (MATERIAL ONLY) | EA | 1 | $ | $ |
| 2 | 9-29 | HYBRID RADAR/VIDEO DETECTION CABINET INTERFACE UNIT (MATERIAL ONLY) | EA | 1 | $ | $ |
| | | | | | **TOTAL – SCHEDULE D** | $ |

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.

## CONSTRUCTION NOTES

(1) INSTALL TYPE 3 INDUCTION LOOP PER WSDOT STANDARD PLANS J-50.05-00, J-50.12-02, AND J-50.15-01. EACH NEW INDUCTION LOOP SHALL BE SPLICED TO SEPARATE LOOP LEAD-INS AND TERMINATED IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON SEPARATE DETECTION INPUTS.

(4) EXISTING LOOP DETECTOR TO REMAIN. RE-SPLICE TO SEPARATE LOOP LEAD-IN AND TERMINATE IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON SEPARATE DETECTION INPUTS. REMAINING LOOPS TO REMAIN SPLICED TO EXISTING LEAD-IN(S).

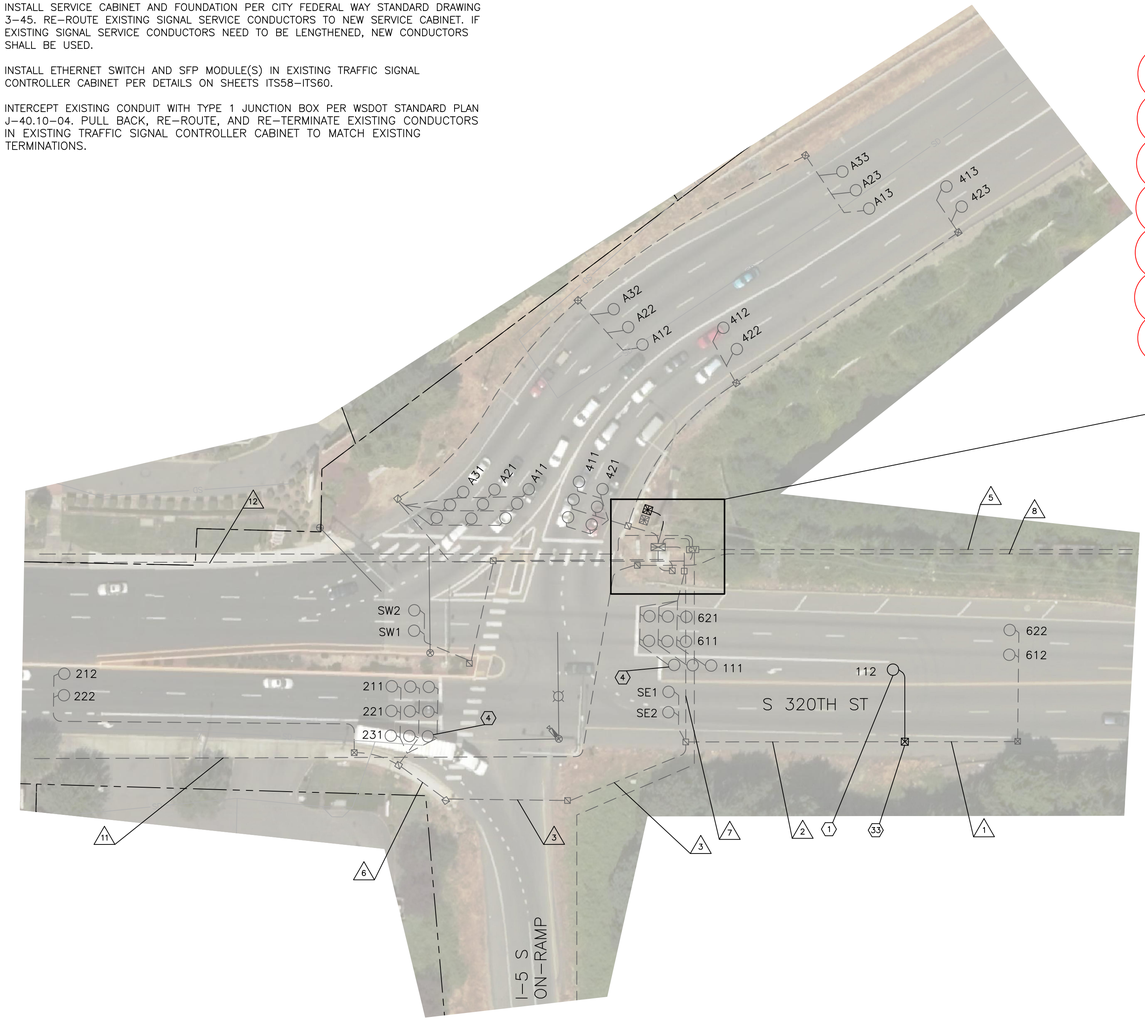
(14) INSTALL SERVICE CABINET AND FOUNDATION PER CITY FEDERAL WAY STANDARD DRAWING 3-45. RE-ROUTE EXISTING SIGNAL SERVICE CONDUCTORS TO NEW SERVICE CABINET. IF EXISTING SIGNAL SERVICE CONDUCTORS NEED TO BE LENGTHENED, NEW CONDUCTORS SHALL BE USED.

(17) INSTALL ETHERNET SWITCH AND SFP MODULE(S) IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58-ITS60.

(33) INTERCEPT EXISTING CONDUIT WITH TYPE 1 JUNCTION BOX PER WSDOT STANDARD PLAN J-40.10-04. PULL BACK, RE-ROUTE, AND RE-TERMINATE EXISTING CONDUCTORS IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET TO MATCH EXISTING TERMINATIONS.

| WIRING SCHEDULE (THIS SHEET ONLY) | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. △ | RACEWAY CONDUIT SIZE* | VEH/PED HEAD 5C | | EV DETECTOR 3C-(SH) | | LOOP 2C-(SH) | | FIBER SMFO | | #6 SERVICE POWER | | NOTE |
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. 1.5" | | | | | 2 | | | | | | |
| 2 | EX. 1.5" | | | | | 2 | 1 | | | | | |
| 3 | EX. 2" | 2 | | 1 | | 6 | 1 | | | | | |
| 4 | EX. 2" | 3 | | 1 | | | 3 | 1 | | | | |
| 5 | EX. 2" | | | | | | | 1 | | | | FC114 (WSDOT) |
| 6 | EX. 2" | | | | | 5 | 1 | | | | | |
| 7 | EX. 3" | 3 | | 1 | | 10 | 2 | 1 | | | | |
| 8 | EX. 2" | | | | | | | 1 | | | | FC50 |
| 9 | 2" SCH(80) | | | | | | | | | | 2 | |
| 10 | EX. 2" | | | | | | | | | | 2 | REROUTE EX. CONDUCTORS |
| 11 | EX. 2" | | | | | | | 1 | | | | FC32 |
| 12 | EX. 2" | | | | | | | 1 | | | | FC48 |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.



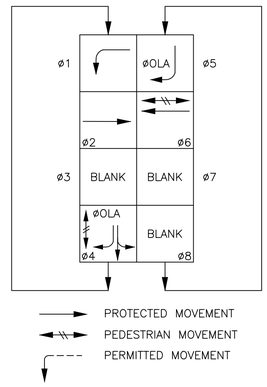

RUN NEW CONDUIT FROM NEW SERVICE CABINET TO NEAREST JUNCTION BOX CONTAINING LIGHTING CIRCUIT I, CURRENTLY POWERED BY SAD 4898. RUN 2-#8 CONDUCTORS TO SIGNAL POLE ON SE CORNER AND REMOVE EXISTING LUMINAIRE FROM CIRCUIT I AND SPLICE INTO NEW LIGHTING CIRCUIT IN NEW SERVICE CABINET.

COORDINATE WITH UTILITY PROVIDER TO PROVIDE ADDITIONAL POWER SUPPLY TO NEW SERVICE CABINET.

INTERCEPT EXISTING 2" SPARE CONDUIT AND ROUTE NEW TRAFFIC SIGNAL POWER CONDUCTORS FROM NEW SERVICE CABINET TO EXISTING CONTROLLER. (1)


INSERT SCALE: 1" = 10'

## SIGNAL PHASING (EX.)




| SERVICE CABINET BREAKER SCHEDULE (1) | | | |
|---|---|---|---|
| SERVICE & CIRCUITS | VOLTAGE | MAIN BREAKER AMPS | CONTACTOR AMPS |
| SERVICE | 120V/240V | 200A | |
| SIGNAL | 120V | | 30A |
| ILLUMINATION | 240V | | 30A |

N

0 20 40 80
Scale In Feet

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | DGN | 10/02/2019 | (1) ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | DGN | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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(TEL) 425 821-3665
(FAX) 425 825-8434


RYAN WESLEY PETERSON — STATE OF WASHINGTON — 47388 — REGISTERED PROFESSIONAL ENGINEER — 10/14/19

# CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM - ITS IMPROVEMENTS

PHASE 1 & 2

S 320TH ST & I-5 SB

ITS02

SHEET 3 OF 69 SHEETS

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.

## CONSTRUCTION NOTES

(1) INSTALL TYPE 3 INDUCTION LOOP PER WSDOT STANDARD PLANS J-50.05-00, J-50.12-02, AND J-50.15-01. EACH NEW INDUCTION LOOP SHALL BE SPLICED TO SEPARATE LOOP LEAD-INS AND TERMINATED IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON SEPARATE DETECTION INPUTS.

(3) INSTALL LOOP DETECTOR STUB-OUT CONDUIT TO EXISTING JUNCTION BOX PER WSDOT STANDARD PLAN J-50.15-01. RESTORE SIDEWALK AND PAVEMENT TO PRE-EXISTING CONDITIONS.

(8) INSTALL VIDEO DETECTION CAMERA ON EXISTING LUMINAIRE MAST ARM TO PROVIDE EXIT DETECTION PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN EXISTING VIDEO DETECTION CAMERA RACK.

(9) INSTALL VIDEO DETECTION CAMERA ON EXISTING SIGNAL MAST ARM TO PROVIDE EXIT DETECTION PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN EXISTING VIDEO DETECTION CAMERA RACK.

(14) INSTALL SERVICE CABINET AND FOUNDATION PER CITY FEDERAL WAY STANDARD DRAWING 3-45. RE-ROUTE EXISTING SIGNAL SERVICE CONDUCTORS TO NEW SERVICE CABINET. IF EXISTING SIGNAL SERVICE CONDUCTORS NEED TO BE LENGTHENED, NEW CONDUCTORS SHALL BE USED. COORDINATE USE OF EXISTING POWER SUPPLY WITH PUGET SOUND ENERGY.

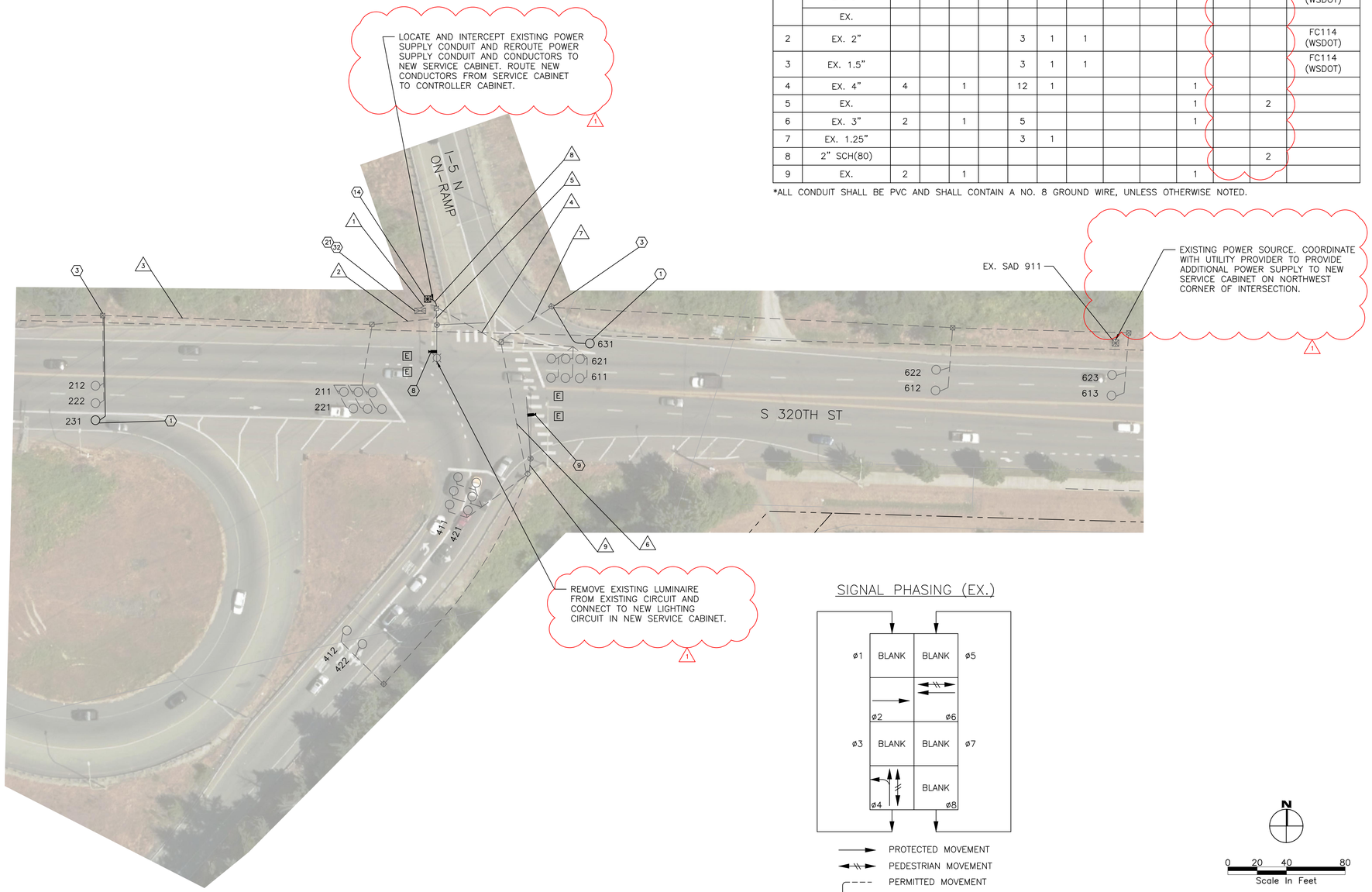
(21) CONFIGURE STOP LINE, FILTER, EXIT, AND ADVANCE LEFT-TURN DETECTION ZONES AS SHOWN ON THIS SHEET. CONFIGURE ADVANCE THRU-LANE RADAR DETECTION ZONES PER DETECTION NOTES ON SHEET ITSN01, AS APPLICABLE.

(32) REMOVE AND REPLACE EXISTING ETHERNET SWITCH AND SFP MODULE(S) PER SHEET ITS58. MATCH EXISTING TERMINATIONS.

WIRING SCHEDULE (THIS SHEET ONLY)

| NO. △ | RACEWAY CONDUIT SIZE* | VEH/PED HEAD 5C | | EV DETECTOR 3C-(SH) | | LOOP 2C-(SH) | | FIBER | | VIDEO DETECT VDCC | | #8 ILLUMINATION △1 | | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. 3" | 3 | | 2 | | 5 | 2 | | | | 2 | | | |
| | EX. 3" | | | | | | | 1 | | | | | | FC114 (WSDOT) |
| | EX. | | | | | | | | | | | | | |
| 2 | EX. 2" | | | | | 3 | 1 | 1 | | | | | | FC114 (WSDOT) |
| 3 | EX. 1.5" | | | | | 3 | 1 | 1 | | | | | | FC114 (WSDOT) |
| 4 | EX. 4" | 4 | | 1 | | 12 | 1 | | | | 1 | | | |
| 5 | EX. | | | | | | | | | | 1 | | 2 | |
| 6 | EX. 3" | 2 | | 1 | | 5 | | | | | 1 | | | |
| 7 | EX. 1.25" | | | | | 3 | 1 | | | | | | | |
| 8 | 2" SCH(80) | | | | | | | | | | | | 2 | |
| 9 | EX. | 2 | | 1 | | | | | | | 1 | | | |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.




SERVICE CABINET BREAKER SCHEDULE

| SERVICE & CIRCUITS | VOLTAGE | MAIN BREAKER AMPS | CONTACTOR AMPS |
|---|---|---|---|
| SERVICE | 120V/240V | 200A | |
| SIGNAL | 120V | | 30A |
| ILLUMINATION | 240V | | 30A |

△1

SIGNAL PHASING (EX.)




N

0 20 40 80
Scale In Feet

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | DGN | 10/02/2019 | △1 ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | DGN | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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RYANN ESLEY PETERSON — STATE OF WASHINGTON — 47388 — REGISTERED PROFESSIONAL ENGINEER — 10/25/19

# CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

PHASE 1 & 2

S 320TH ST & I-5 NB

ITS04

SHEET 5 OF 69 SHEETS

M:\16\1.1617400 - Federal Way ASC Systems Engineering\Engineering\CAD\Sheets\sht 4 - S 320th St - I-5 N\AmerS 320th ST & I-5 N\Revision Hist 10/15/2019 2:57 PM

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.

## CONSTRUCTION NOTES

(5) INSTALL HYBRID RADAR/VIDEO DETECTION CAMERA ON EXISTING LUMINAIRE MAST ARM PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN HYBRID RADAR/VIDEO DETECTION CONTROL UNIT.

(6) INSTALL HYBRID RADAR/VIDEO DETECTION CAMERA ON EXISTING SIGNAL MAST ARM PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN HYBRID RADAR/VIDEO DETECTION CONTROL UNIT.

(7) INSTALL HYBRID RADAR/VIDEO DETECTION CONTROL UNIT IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET.

(14) INSTALL SERVICE CABINET AND FOUNDATION PER CITY FEDERAL WAY STANDARD DRAWING 3-45. RE-ROUTE EXISTING SIGNAL SERVICE CONDUCTORS TO NEW SERVICE CABINET. IF EXISTING SIGNAL SERVICE CONDUCTORS NEED TO BE LENGTHENED, NEW CONDUCTORS SHALL BE USED.

(15) INSTALL SPLICE CLOSURE AND SPLICE 24 SMFO PRE-TERMINATED STUB CABLE TO EXISTING FIBER OPTIC CABLE PER DETAILS ON SHEETS ITS58-ITS60.

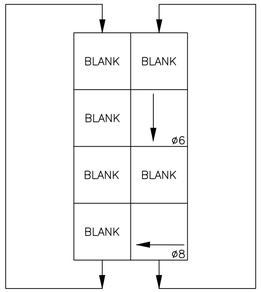
(16) INSTALL 24-PORT FIBER OPTIC PATCH PANEL IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58-ITS60.

(17) INSTALL ETHERNET SWITCH AND SFP MODULE(S) IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58-ITS60.

(21) CONFIGURE STOP LINE, FILTER, EXIT, AND ADVANCE LEFT-TURN DETECTION ZONES AS SHOWN ON THIS SHEET. CONFIGURE ADVANCE THRU-LANE RADAR DETECTION ZONES PER DETECTION NOTES ON SHEET ITSN01, AS APPLICABLE.

(28) REMOVE AND REPLACE EXISTING TYPE 1 JUNCTION BOX WITH TYPE 2 JUNCTION BOX.

## SIGNAL PHASING (EX.)

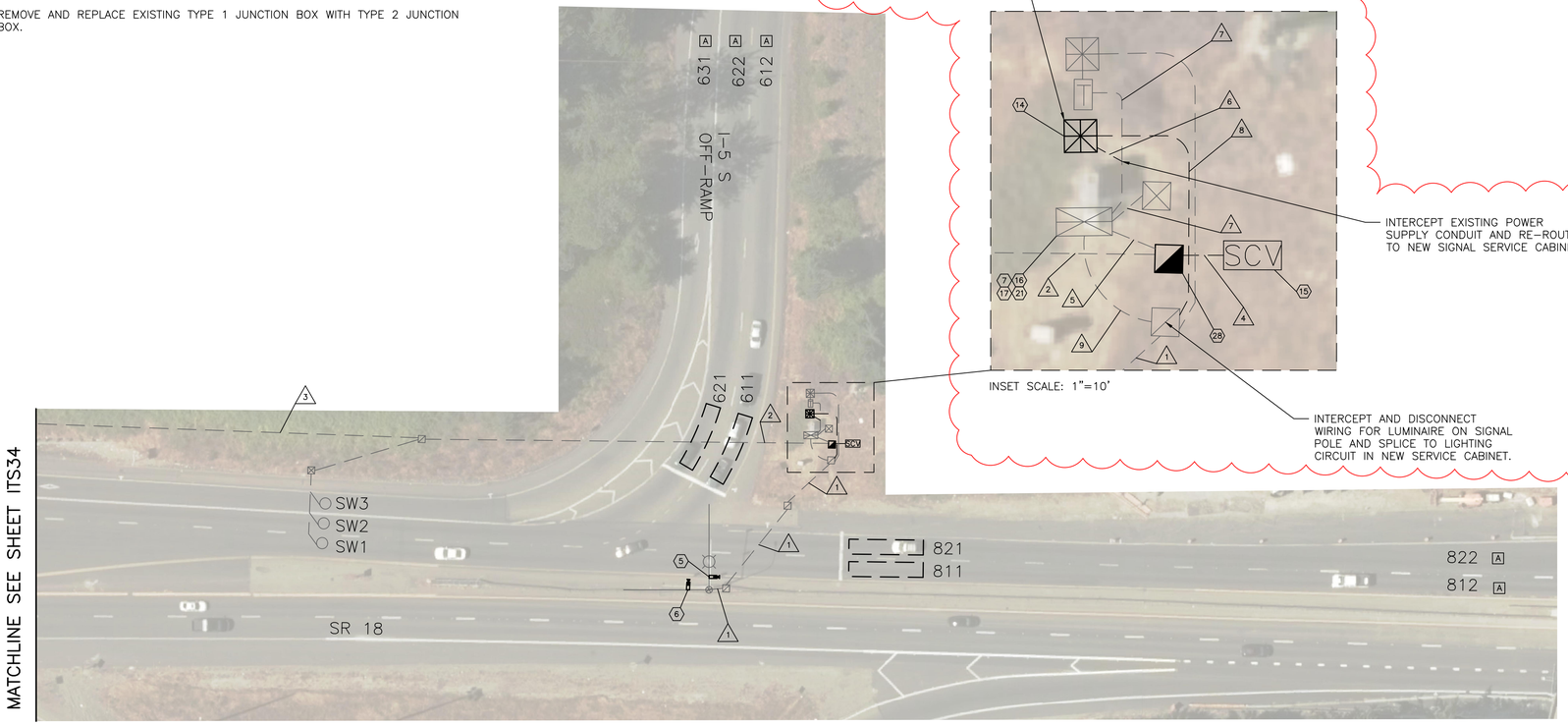



PROTECTED MOVEMENT
PEDESTRIAN MOVEMENT
PERMITTED MOVEMENT

WIRING SCHEDULE (THIS SHEET ONLY)

| NO. | RACEWAY CONDUIT SIZE* | VEH/PED HEAD 5C | | EV DETECTOR 3C-(SH) | | ILLUM #8 | | LOOP 2C-(SH) | | HYBRID RADAR/VIDEO CAT6 | | INTERCONNECT 6 PR | | FIBER 24 SMFO | | FIBER 24 PRE-TERM | | SIGNAL SERVICE #6 | | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. | 4 | | 2 | | 2 | | | | | 2 | | | | | | | | | |
| 2 | EX. 2" | | | | | | | 3 | | | | 1(R) | | | 1 | | | | | |
| 3 | EX. 2" | | | | | | | | | | | 1(R) | | | 1 | | | | | |
| 4 | 2" SCH80 | | | | | | | | | | | | | | 1 | | 1 | | | |
| 5 | 2" SCH80 | | | | | | | 3 | | | | 1(R) | | | | | 1 | | | |
| 6 | 2" SCH80 | | | | | | | | | | | | | | | | | | 2 | |
| 7 | EX. | | | | | | | | | | | | | | | | | 2 | | RE-ROUTE EX. CONDUCTORS |
| 8 | 2" SCH80 | | | | | | 2 | | | | | | | | | | | | | |
| 9 | EX. | 4 | | 2 | | | | | | | 2 | | | | | | | | | |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.
(R) REMOVE EXISTING CONDUCTOR




COORDINATE WITH ELECTRICAL UTILITY PROVIDER TO IDENTIFY POWER SOURCE AND SUPPLY 120/240V SERVICE TO NEW SERVICE CABINET.

INTERCEPT EXISTING POWER SUPPLY CONDUIT AND RE-ROUTE TO NEW SIGNAL SERVICE CABINET.

INSET SCALE: 1"=10'

INTERCEPT AND DISCONNECT WIRING FOR LUMINAIRE ON SIGNAL POLE AND SPLICE TO LIGHTING CIRCUIT IN NEW SERVICE CABINET.

SERVICE CABINET BREAKER SCHEDULE

| SERVICE & CIRCUITS | VOLTAGE | MAIN BREAKER AMPS | CONTACTOR AMPS |
|---|---|---|---|
| SERVICE | 120V/240V | 200A | |
| SIGNAL | 120V | | 30A |
| ILLUMINATION | 240V | | 20A |

N

0 20 40 80
Scale In Feet

CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | RDM | 10/02/2019 | 1 ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | RDM | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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R. WESLEY PETERSON, STATE OF WASHINGTON, 47368, REGISTERED PROFESSIONAL ENGINEER
10/15/19

# CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

PHASE 1 & 2

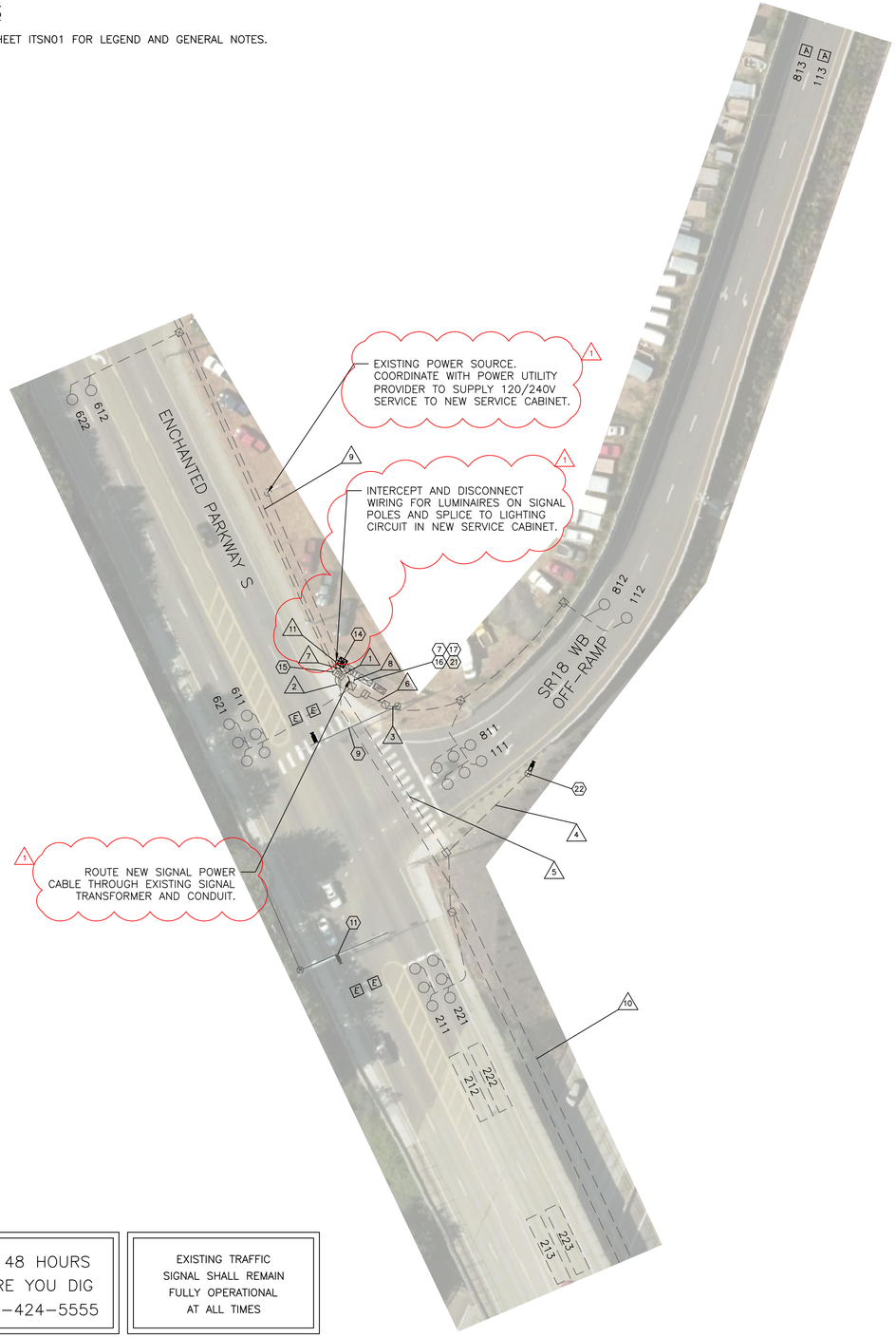
SR 18 & I-5 SB

ITS41

SHEET 28 OF 69 SHEETS

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.




| WIRING SCHEDULE (THIS SHEET ONLY) | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| NO. △ | RACEWAY CONDUIT SIZE* | PPB/LOOP/EV INDICATOR 2C–(SH) | | VEH/PED HEAD 5C | | EV DETECTOR 3C–(SH) | | ILLUM #8 | | #8 SERVICE POWER | | VIDEO DETECT VDCC | | HYBRID RADAR/VIDEO CAT6 | | SIGNAL POWER #6 | | FIBER 24 PER–TERM | | FIBER 48 SMFO | | NOTE |
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. 3" | 9 | | 3 | | 2 | | | | | | 2 | 1 | | 1 | | | | | | | |
| | EX. 2" | | | | | | | | | | | | | | | | | | 1 | 1 | | |
| 2 | EX. 2.5" | 7 | | 5 | | 1 | | 4 | | | | | 1 | | | | | | | | | |
| 3 | EX. 2" | | | 1 | | 1 | | 2 | | | | | 1 | | | | | | | | | |
| 4 | EX. 1.5" | | | 1 | | | | | | | | | | | 1 | | | | | | | |
| 5 | EX. 2" | | | | | | | | | | | | | | 1 | | | | | | | |
| 6 | EX. 3" | 4 | | 1 | | 1 | | 2 | | 2 | | | 1 | | | | | | | | | |
| 7 | 2" SCH80 | | | | | | | | | | | | | | | | 1 | | | | | |
| 8 | EX. 2" | | | | | | | | | | | | | | | | 1 | | | | | |
| 9 | EX. 2" | | | | | | | | | | | | | | | | | | | 1 | | FC92 |
| 10 | EX. 2" | | | | | | | | | | | | | | | | | | | 1 | | FC95 |
| 11 | 2" SCH80 | | | | | | | | 2 | | | | | | | | | | | | | |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.

## CONSTRUCTION NOTES

(7) INSTALL HYBRID RADAR/VIDEO DETECTION CONTROL UNIT IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET.

(9) INSTALL VIDEO DETECTION CAMERA ON EXISTING SIGNAL MAST ARM TO PROVIDE EXIT DETECTION PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN EXISTING VIDEO DETECTION CAMERA RACK.

(11) RE–ORIENT EXISTING VIDEO DETECTION CAMERA ON EXISTING SIGNAL MAST ARM TO PROVIDE EXIT DETECTION PER MANUFACTURER'S RECOMMENDATION.

(15) INSTALL SPLICE CLOSURE AND SPLICE 24 SMFO PRE–TERMINATED STUB CABLE TO EXISTING FIBER OPTIC CABLE PER DETAILS ON SHEETS ITS58–ITS60.

(16) INSTALL 24–PORT FIBER OPTIC PATCH PANEL IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58–ITS60.

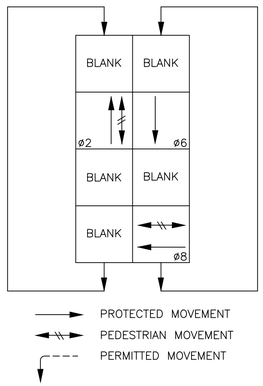
(17) INSTALL ETHERNET SWITCH AND SFP MODULE(S) IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58–ITS60.

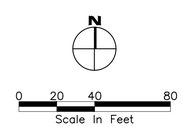
(21) CONFIGURE STOP LINE, FILTER, EXIT, AND ADVANCE LEFT–TURN DETECTION ZONES AS SHOWN ON THIS SHEET. CONFIGURE ADVANCE THRU–LANE RADAR DETECTION ZONES PER DETECTION NOTES ON SHEET ITSN01, AS APPLICABLE.

(22) INSTALL HYBRID RADAR/VIDEO DETECTION CAMERA ON EXISTING TYPE I POLE PER MANUFACTURER'S RECOMMENDATION. TERMINATE CONDUCTOR IN HYBRID RADAR/VIDEO DETECTION CONTROL UNIT.

| SERVICE CABINET BREAKER SCHEDULE | | | |
|---|---|---|---|
| SERVICE & CIRCUITS | VOLTAGE | MAIN BREAKER AMPS | CONTACTOR AMPS |
| SERVICE | 120V/240V | 200A | |
| SIGNAL | 120V | | 30A |
| ILLUMINATION | 240V | | 20A |

## SIGNAL PHASING (EX.)




CALL 48 HOURS BEFORE YOU DIG 1–800–424–5555

EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | RDM | 10/02/2019 | 1 ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | RDM | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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(FAX) 425 825-8434


RAMWEST PETERSEN STATE OF WASHINGTON 17388 REGISTERED PROFESSIONAL ENGINEER 10/14/19

# CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

PHASE 1 & 2

ENCHANTED PKWY S (SR 161) & SR 18 WB

ITS42

SHEET 29 OF 69 SHEETS

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.

## CONSTRUCTION NOTES

(1) INSTALL TYPE 3 INDUCTION LOOP PER WSDOT STANDARD PLANS J-50.05-00, J-50.12-02, AND J-50.15-01. EACH NEW INDUCTION LOOP SHALL BE SPLICED TO SEPARATE LOOP LEAD-INS AND TERMINATED IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON SEPARATE DETECTION INPUTS.

(2) INTERCEPT EXISTING CONDUIT WITH TYPE 1 JUNCTION BOX PER WSDOT STANDARD PLAN J-40.10-04. RESTORE SIDEWALK TO PRE-EXISTING CONDITIONS. PULL BACK, RE-ROUTE, AND RE-TERMINATE EXISTING CONDUCTORS IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET TO MATCH EXISTING TERMINATIONS.

(3) INSTALL LOOP DETECTOR STUB-OUT CONDUIT TO EXISTING JUNCTION BOX PER WSDOT STANDARD PLAN J-50.15-01. RESTORE SIDEWALK AND PAVEMENT TO PRE-EXISTING CONDITIONS.

(5) INSTALL HYBRID RADAR/VIDEO DETECTION CAMERA ON EXISTING LUMINAIRE MAST ARM PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN HYBRID RADAR/VIDEO DETECTION CONTROL UNIT.

(7) INSTALL HYBRID RADAR/VIDEO DETECTION CONTROL UNIT IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET.

(8) INSTALL VIDEO DETECTION CAMERA ON EXISTING LUMINAIRE MAST ARM TO PROVIDE EXIT DETECTION PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN EXISTING VIDEO DETECTION CAMERA RACK.

(14) INSTALL SERVICE CABINET AND FOUNDATION PER CITY FEDERAL WAY STANDARD DRAWING 3-45. RE-ROUTE EXISTING SIGNAL SERVICE CONDUCTORS TO NEW SERVICE CABINET. IF EXISTING SIGNAL SERVICE CONDUCTORS NEED TO BE LENGTHENED, NEW CONDUCTORS SHALL BE USED. COORDINATE USE OF EXISTING POWER SUPPLY WITH PUGET SOUND ENERGY.

(15) INSTALL SPLICE CLOSURE AND SPLICE 24 SMFO PRE-TERMINATED STUB CABLE TO EXISTING FIBER OPTIC CABLE PER DETAILS ON SHEETS ITS58-ITS60.

(16) INSTALL 24-PORT FIBER OPTIC PATCH PANEL IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58-ITS60.

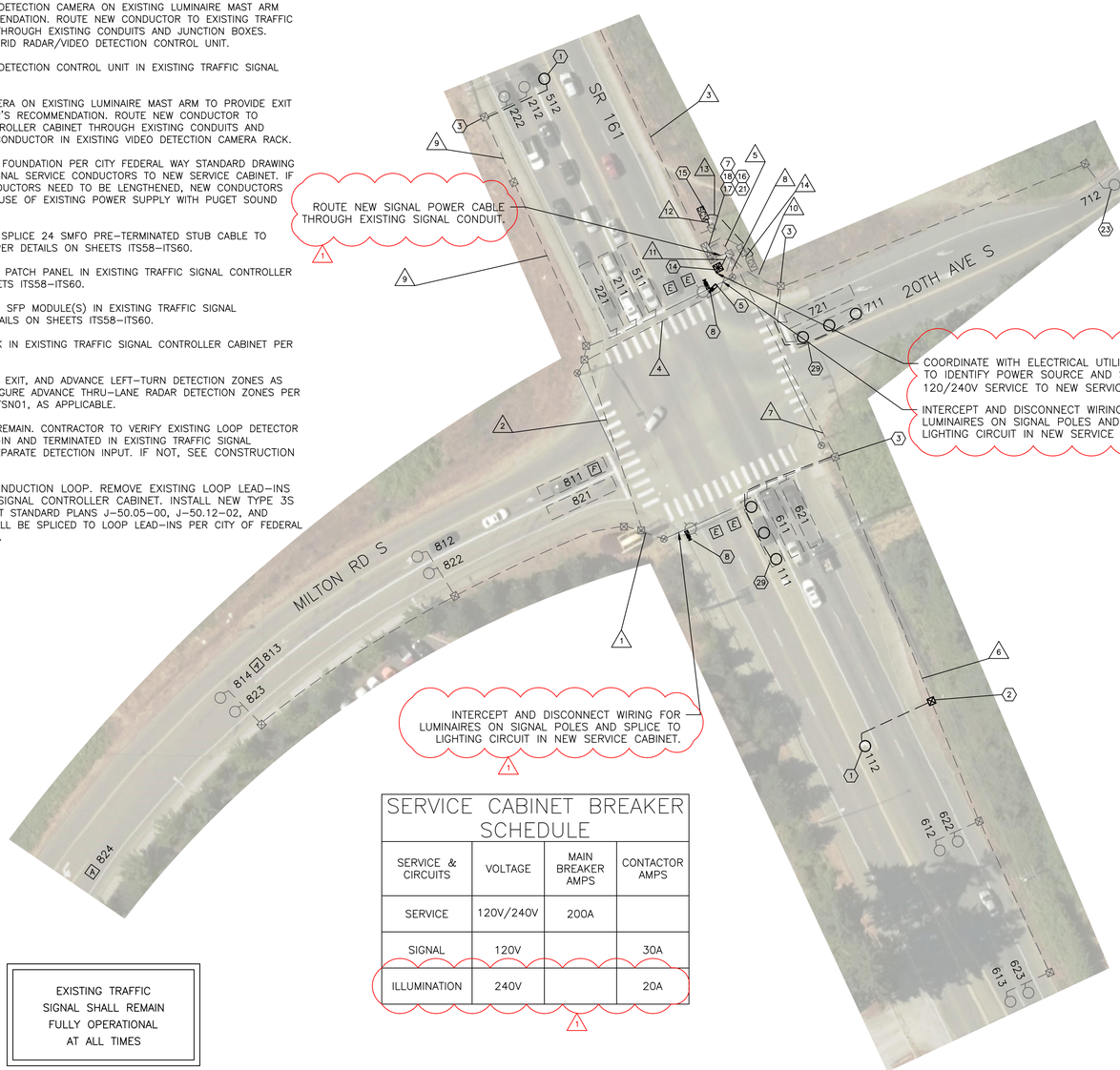
(17) INSTALL ETHERNET SWITCH AND SFP MODULE(S) IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAILS ON SHEETS ITS58-ITS60.

(18) INSTALL VIDEO DETECTION RACK IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET PER DETAIL ON SHEET ITS58-ITS60.

(21) CONFIGURE STOP LINE, FILTER, EXIT, AND ADVANCE LEFT-TURN DETECTION ZONES AS SHOWN ON THIS SHEET. CONFIGURE ADVANCE THRU-LANE RADAR DETECTION ZONES PER DETECTION NOTES ON SHEET ITSN01, AS APPLICABLE.

(23) EXISTING LOOP DETECTOR TO REMAIN. CONTRACTOR TO VERIFY EXISTING LOOP DETECTOR IS SPLICED TO ITS OWN LEAD-IN AND TERMINATED IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON A SEPARATE DETECTION INPUT. IF NOT, SEE CONSTRUCTION NOTE 4 ON SHEET ITSN01.

(29) ABANDON EXISTING TYPE 1 INDUCTION LOOP. REMOVE EXISTING LOOP LEAD-INS BACK TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET. INSTALL NEW TYPE 3S INDUCTION LOOPS PER WSDOT STANDARD PLANS J-50.05-00, J-50.12-02, AND J-50.15-01. LOOP WIRES SHALL BE SPLICED TO LOOP LEAD-INS PER CITY OF FEDERAL WAY STANDARD DRAWING 3-44.




### SERVICE CABINET BREAKER SCHEDULE

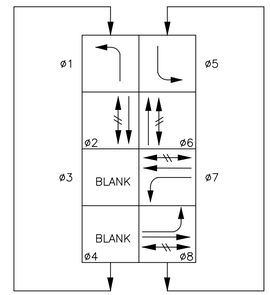
| SERVICE & CIRCUITS | VOLTAGE | MAIN BREAKER AMPS | CONTACTOR AMPS |
|---|---|---|---|
| SERVICE | 120V/240V | 200A | |
| SIGNAL | 120V | | 30A |
| ILLUMINATION | 240V | | 20A |

### WIRING SCHEDULE (THIS SHEET ONLY)

| NO. | RACEWAY CONDUIT SIZE* | VEH/PED HEAD 5C | | EV DETECTOR 3C-(SH) | | LOOP 2C-(SH) | | VIDEO DETECT VDCC | | HYBRID RADAR/VIDEO CAT6 | | FIBER 48 SMFO | | FIBER 24 PRE-TERM | | SIGNAL SERVICE #6 | | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. 2" | 3 | | 1 | | | | | 1 | | | | | | | | | |
| 2 | EX. 2" | | | 1 | | 3 | | | 1 | | | | | | | | | |
| 3 | EX. 2" | | | | | | | | | | | 1 | | | | | | FC95 |
| 4 | EX. 3" | | | 2 | | 9 | 1 | | 1 | | | | | | | | | |
| 5 | EX. 3" | | | | | 13 | 6 | | 2 | | 1 | | | | | | | |
| | EX. 3.5" | | | | | | | | | | | | | | | | 2 | |
| 6 | EX. 2" | | | | | 3 | 1 | | | | | | | | | | | |
| 7 | EX. 3" | | | 1 | | 6 | 3 | | | | | | | | | | | |
| 8 | EX. 2" | 4 | | 1 | | | | | 1 | | 1 | | | | | | | |
| 9 | EX. 2" | | | | | 2 | 1 | | | | | | | | | | | |
| 10 | EX. 2" | | | | | 4 | 2 | | | | | | | | | | | |
| 11 | 3" SCH80 | | | | | | | | | | | | | | | | 2 | |
| 12 | 2" SCH80 | | | | | | | | | | | 1 | | | 1 | | | |
| 13 | 2" SCH80 | | | | | | | | | | | | | | 1 | | | |
| 14 | EX. 2" | | | | | | | | | | | | | 1 | 1 | | | |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.

### SIGNAL PHASING (EX.)




PROTECTED MOVEMENT
PEDESTRIAN MOVEMENT
PERMITTED MOVEMENT

N

0 20 40 80
Scale In Feet

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EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | RDM | 10/02/2019 | 1 ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | RDM | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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R. WESLEY PETERSEN — STATE OF WASHINGTON — 47388 — REGISTERED PROFESSIONAL ENGINEER — 10/25/19

CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

PHASE 1 & 2

ENCHANTED PKWY S (SR 161) & MILTON RD S

ITS43

SHEET 30 OF 69 SHEETS

M:\16\1.16174.00 - Federal Way ASC Systems Engineering\Engineering\CAD\Sheets\Jet 43 - Kits_Corner RD S - 20th Ave S.dwg<KITS CORNER RD S & 20TH AVE S> Jessica Hall 10/15/2019 4:01 PM

## NOTES

1. SEE SHEET ITSN01 FOR LEGEND AND GENERAL NOTES.

## CONSTRUCTION NOTES

(5) INSTALL HYBRID RADAR/VIDEO DETECTION CAMERA ON EXISTING LUMINAIRE MAST ARM PER MANUFACTURER'S RECOMMENDATION. ROUTE NEW CONDUCTOR TO EXISTING TRAFFIC SIGNAL CONTROLLER CABINET THROUGH EXISTING CONDUITS AND JUNCTION BOXES. TERMINATE CONDUCTOR IN HYBRID RADAR/VIDEO DETECTION CONTROL UNIT.

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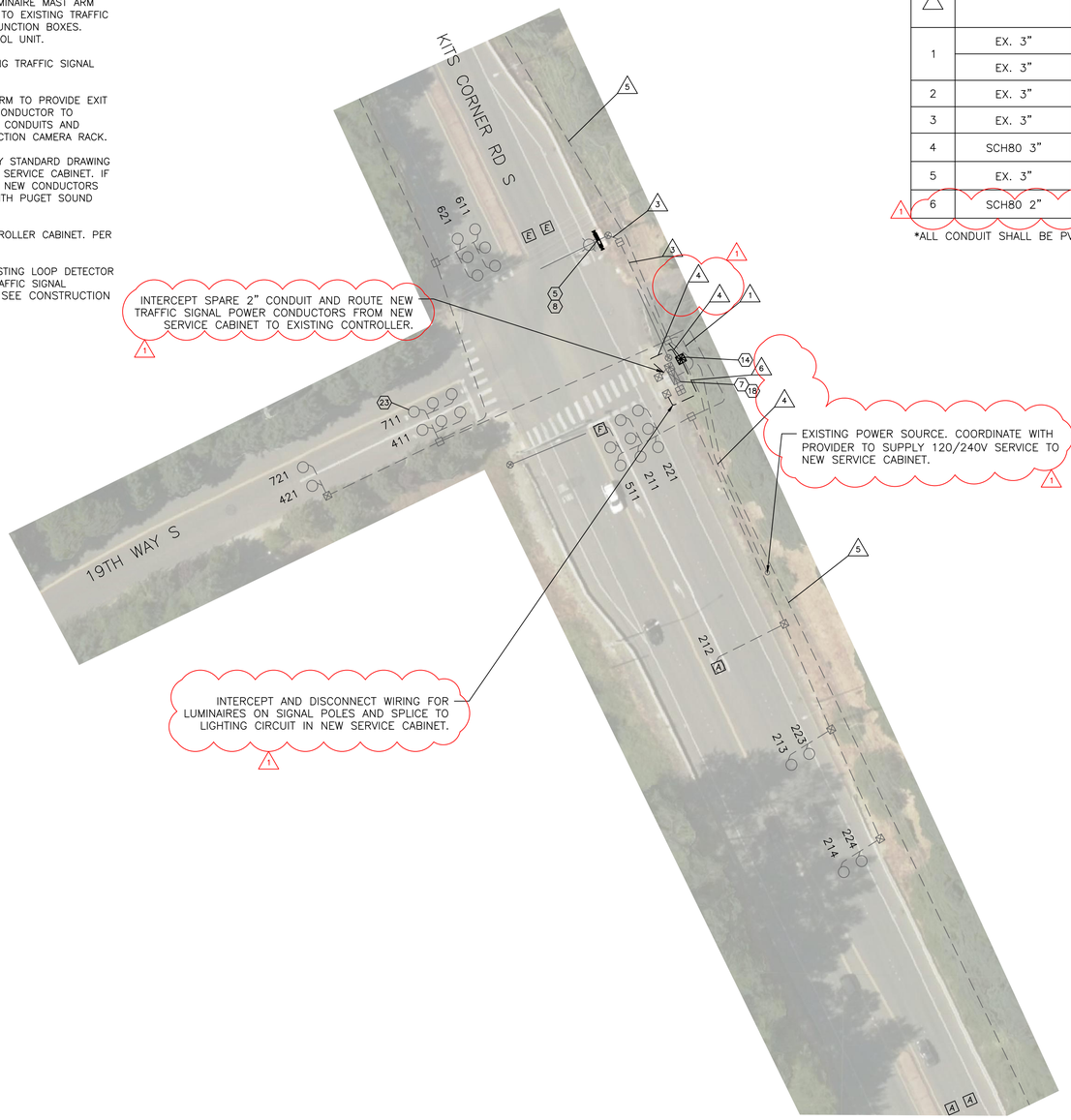
(18) INSTALL VIDEO DETECTION RACK IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET. PER DETAIL ON SHEET ITS58-ITS60.

(23) EXISTING LOOP DETECTOR TO REMAIN. CONTRACTOR TO VERIFY EXISTING LOOP DETECTOR IS SPLICED TO ITS OWN LEAD-IN AND TERMINATED IN EXISTING TRAFFIC SIGNAL CONTROLLER CABINET ON A SEPARATE DETECTION INPUT. IF NOT, SEE CONSTRUCTION NOTE 4 ON SHEET ITSN01.




WIRING SCHEDULE (THIS SHEET ONLY)

| NO. | RACEWAY CONDUIT SIZE* | PPB/LOOP/EV INDICATOR 2C-(SH) | | VEH/PED HEAD 5C | | EV DETECTOR 3C-(SH) | | ILLUM #8 | | LOOP 2C-(SH) | | HYBRID RADAR/VIDEO CAT6 | | VIDEO DETECT VDCC | | FIBER 48 SMFO | | SIGNAL SERVICE #6 | | NOTE |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | EX. | NEW | |
| 1 | EX. 3" | | 2 | 10 | | 3 | | | | | | | 1 | | 1 | | | | | |
| | EX. 3" | | | | | | | | | | | | | | | | | | 2 | |
| 2 | EX. 3" | | | | | | | | | 7 | 1 | | | | | | | | | |
| 3 | EX. 3" | | | 2 | | 1 | | 2 | | | | | 1 | | 1 | | | | | |
| 4 | SCH80 3" | | | | | | | | | | | | | | | | | | 2 | |
| 5 | EX. 3" | | | | | | | | | | | | | | | | | 1 | | |
| 6 | SCH80 2" | | | | | | | | 2 | | | | | | | | | | | |

*ALL CONDUIT SHALL BE PVC AND SHALL CONTAIN A NO. 8 GROUND WIRE, UNLESS OTHERWISE NOTED.

## SIGNAL PHASING (EX.)







CALL 48 HOURS BEFORE YOU DIG 1-800-424-5555

EXISTING TRAFFIC SIGNAL SHALL REMAIN FULLY OPERATIONAL AT ALL TIMES

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | RDM | 10/02/2019 | 1 ADDENDUM #1 | RWP | 10/14/2019 |
| DRAWN BY | RDM | 10/02/2019 | | | |
| REVIEWED BY | JC | 10/02/2019 | | | |

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R. A. WESLEY PETERSEN — STATE OF WASHINGTON — 47388 — REGISTERED PROFESSIONAL ENGINEER — 10/14/19

CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

PHASE 1 & 2

ENCHANTED PKWY S (SR 161) & 19TH WAY S

ITS44

SHEET 31 OF 69 SHEETS

# TEMPORARY TRAFFIC CONTROL (TTC) NOTES:

1. MAINTAIN ACCESS TO ALL PRIVATE DRIVEWAYS AND BUS STOPS AT ALL TIMES
2. ALL TEMPORARY TRAFFIC CONTROL (TTC) SHALL BE IN ACCORDANCE WITH THE LATEST EDITION MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD) PART 6 AND THE WSDOT STANDARD SPECIFICATIONS FOR ROAD, BRIDGE, AND MUNICIPAL CONSTRUCTION (DATED 2014).
3. ALL W-SERIES SIGNS SHALL BE BLACK LEGEND ON ORANGE BACKGROUND, UNLESS OTHERWISE SPECIFIED.
4. ALL R-SERIES SIGNS SHALL BE BLACK LEGEND ON WHITE BACKGROUND, UNLESS OTHERWISE SPECIFIED.
5. ALL DIAMOND SHAPED WARNING SIGNS SHALL BE 48"x48".
6. A UNIFORMED POLICE OFFICER OR STATE TROOPER SHALL CONTROL INTERSECTION TRAFFIC WHENEVER SIGNAL OPERATIONS ARE IMPACTED, A TRAFFIC SIGNAL IS NOT OPERATIONAL, OR AS SHOWN IN THESE PLANS. TRAFFIC SIGNALS SHALL BE SET TO ALL RED "FLASH" MODE WHEN THE INTERSECTION IS BEING CONTROLLED BY A UNIFORMED POLICE OFFICER OR STATE TROOPER.
7. REDUCE SPACING OF DEVICES SHOWN IN THE "CHANNELIZATION DEVICE SPACING" TABLE BY 1/2 WHERE DEVICES ARE USED AS A "CENTERLINE" TO SEPARATE ADJACENT OPPOSING LANES OF TRAFFIC.
8. ALL STREET LIGHT INSTALLATIONS ON EXISTING POLES SHALL BE COMPLETED DURING LANE CLOSURES FOR OTHER WORK OR COMPLETED WITHOUT BLOCKING TRAVEL LANES. ALL WORK TRUCKS REQUIRED TO INSTALL STREET LIGHTS SHALL HAVE A ROTATING BEACON IN COMPLIANCE WITH MUTCD CHAPTER 6H.
9. TYPE 3 BARRICADES SHALL CONFORM TO WSDOT STANDARD PLAN K-80.20-00.
10. PROVIDE ALL PEDESTRIANS WITH AN ALTERNATE ACCESSIBLE ROUTE WHEN THE CONSTRUCTION ACTIVITY OR TTC CLOSES AN ACCESSIBLE PEDESTRIAN ROUTE. THE FOLLOWING GUIDANCE AND DETAIL ON SHEET TC02 ARE PROVIDED REGARDING TEMPORARY TRAFFIC CONTROL FOR PEDESTRIANS:
    - 10.1. TTC DEVICES AND OTHER CONSTRUCTION MATERIALS/FEATURES SHALL NOT INTRUDE INTO THE USABLE WIDTH OF PEDESTRIAN ROUTES.
    - 10.2. PROVIDE A MINIMUM 84" VERTICAL CLEARANCE FOR PEDESTRIAN ROUTES. SIGNS AND OTHER DEVICES MOUNTED LOWER THAN 84" ABOVE THE PEDESTRIAN ROUTE SHALL NOT PROJECT MORE THAN 4" INTO THE PEDESTRIAN ROUTE.
    - 10.3. MAINTAIN THE WIDTH OF EXISTING PEDESTRIAN FACILITIES WHEN FEASIBLE. WHEN IT IS NOT FEASIBLE TO MAINTAIN A MINIMUM WIDTH OF 60" THROUGHOUT THE LENGTH OF THE PEDESTRIAN ACCESSIBLE ROUTE, A MINIMUM WIDTH OF 48" SHALL BE PROVIDED WITH 60" X 60" PASSING ZONES SPACED AT MAXIMUM INTERVALS OF 200' TO ALLOW INDIVIDUALS IN WHEELCHAIRS TO PASS.
    - 10.4. PROVIDE A SMOOTH, CONTINUOUS HARD SURFACE THROUGHOUT THE ENTIRE LENGTH AND WIDTH OF THE PEDESTRIAN ROUTE THROUGH THE WORK ZONE. THERE SHALL BE NO CURBS OR VERTICAL ELEVATION CHANGES GREATER THAN ½" IN GRADE OR TERRAIN THAT COULD CAUSE TRIPPING OR BE A BARRIER TO WHEELCHAIR USE. VERTICAL ELEVATION DIFFERENCES BETWEEN ¼" AND ½" SHALL BE BEVELED AT A MAXIMUM 2:1 SLOPE.
    - 10.5. WHEN CHANNELIZATION IS USED TO DELINEATE A PEDESTRIAN PATHWAY, A CONTINUOUS DETECTABLE EDGING SHALL BE PROVED THROUGHOUT THE LENGTH OF THE FACILITY SUCH THAT PEDESTRIANS USING A CANE CAN FOLLOW IT. EDGING SHALL PROTRUDE AT LEAST 6" ABOVE THE SURFACE OF THE SIDEWALK OR PATHWAY WITH THE BOTTOM OF EDGING A MAXIMUM OF 2.5" ABOVE THE SURFACE.
    - 10.6. AT LOCATIONS WHERE ADJACENT ALTERNATE ROUTES CANNOT BE PROVIDED, APPROPRIATE SIGNS SHALL BE POSTED IN ADVANCE OF THE CLOSURE AT THE NEAREST MARKED CROSSWALK OR INTERSECTION TO DETOUR PEDESTRIANS ACROSS THE STREET. PHYSICAL BARRICADES SHALL BE INSTALLED TO PREVENT VISUALLY IMPAIRED PEOPLE FROM INADVERTENTLY ENTERING A CLOSED AREA. APPROPRIATE SIGNING SHALL BE PLACED AT THE INTERSECTIONS PRIOR TO ANY PEDESTRIAN ROUTE CLOSURE.
    - 10.7. PROVIDE TEMPORARY RAMPS WHEN AN ALTERNATE PEDESTRIAN ROUTE CROSSES A CURB AND NO PERMANENT CURB RAMPS ARE IN PLACE. THE WIDTH OF THE CURB RAMP SHALL BE A MINIMUM OF 48" AND THE MAXIMUM SLOPE OF THE RAMP SHALL BE 8.3%. THE MAXIMUM CROSS SLOPE SHALL BE 2%. THE BOTTOM OF THE CURB RAMP SHALL BE FLUSH WITH THE ROADWAY. TEMPORARY DETECTABLE WARNING MATS SHALL BE INSTALLED AT STREET CROSSINGS.
    - 10.8. INFORMATION REGARDING CLOSED PEDESTRIAN ROUTES, ALTERNATE CROSSINGS, AND SIGN AND SIGNAL INFORMATION SHALL BE COMMUNICATED TO PEDESTRIANS WITH VISUAL DISABILITIES BY PROVIDING DEVICES SUCH AS AUDIBLE INFORMATION DEVICES, ACCESSIBLE PEDESTRIAN SIGNALS, OR BARRIERS/CHANNELIZATION DEVICES THAT ARE DETECTABLE TO PEDESTRIANS TRAVELING WITH THE AID OF A CANE OR WHO HAVE LOW VISION.
11. WORK DURING HOURS OF DARKNESS SHALL PROVIDE:
    - 11.1. ILLUMINATION AT ALL FLAGGING STATIONS.
    - 11.2. TYPE C STEADY BURNING LIGHTS ON TRAFFIC CONTROL DEVICES.
12. ALL WORK INVOLVING THE INSTALLATION OF NEW LOOP DETECTORS SHALL BE PERFORMED AT NIGHT, IN ACCORDANCE WITH THE SPECIAL PROVISIONS.

# TTC SHEET REFERENCE TABLE:

| Phase 1&2 | | |
|---|---|---|
| Sheet No. | Work Element | TTC Detail |
| ITS1 | WB LT loop | K,L |
| ITS1 | Video on EB arm | A |
| ITS2 | WB LT loop | B,D |
| ITS3 | NB Radar | A |
| ITS3 | SB Radar | I |
| ITS3 | EB Radar | A |
| ITS3 | WB Radar | A |
| ITS4 | Loop ramp Loop | M |
| ITS4 | WB RT loop | N |
| ITS4 | WB Video | N |
| ITS4 | EB Video | M |
| ITS5 | EB Radar | A |
| ITS5 | WB Radar | A |
| ITS5 | SB Radar | I |
| ITS6 | NB Radar | A |
| ITS6 | SB Radar | C |
| ITS6 | EB Radar | H |
| ITS6 | WB Radar | C |
| ITS7 | SB LT Loop/Radar/Video | B,E |
| ITS7 | NB LT Loop | B,E |
| ITS7 | WB Radar | O |
| ITS8 | SB LT Loop | B, E |
| ITS8 | WB Radar | F |
| ITS8 | NB Radar | A |
| ITS9 | EB Radar | A |
| ITS9 | NB Radar | A |
| ITS9 | SB Radar, Video | C |
| ITS9 | WB radar, Video | A |
| ITS10 | EB Radar | A |
| ITS10 | WB LT loop | B,D |
| ITS11 | EB LT Loop/Video | B, E |
| ITS11 | WB LT loop | B,D |
| ITS12 | WB LT loop/Video | B,D |
| ITS12 | EB Video | A |
| ITS13 | EB Radar | A |
| ITS13 | NB Radar | G |
| ITS13 | WB LT loop | B, D |
| ITS15 | SB Radar/EB Video | G |
| ITS15 | WB Video/NB Radar | A |
| ITS16 | NB Radar/Video | A |
| ITS23 | SB LT Loop, Video | B, E |
| ITS23 | NB LT Loop, Video | B, E |
| ITS23 | WB LT Loop | B, E |
| ITS23 | EB Radar | A |
| ITS26 | SB LT Loop | B,E |
| ITS26 | NB Radar/Video | A |
| ITS26 | EB Radar/Video | C |
| ITS27 | SB LT Loop, Video, WB Radar | B,E |
| ITS27 | NB LT Loop,Video | B,E |
| ITS29 | SB LT Loop, Video | B, E |
| ITS29 | NB LT Loop, Video | B, E |
| ITS29 | WB radar, Video | G |
| ITS30 | SB LT Loop, Video | P,E |
| ITS30 | NB LT Loop, Video | B, E |
| ITS30 | 16th Video | I |
| ITS31 | NB LT Loop, EB Radar | B,E |
| ITS31 | SB Radar/WB Radar | A, C |
| ITS32 | SB LT Loop | B,E |
| ITS32 | NB Radar/Video | A |
| ITS34 | SB LT Loop,Video | B,D |
| ITS34 | NB Radar/Video, EB Radar | R |
| ITS34 | NB RT Loops | S |
| ITS34 | WB Video | T |
| ITS35 | SB Loop and Video | B, D |
| ITS35 | NB Loop and Video | B, D |
| ITS35 | NB Radar and WB Video | W |
| ITS36 | SB Video | A |
| ITS36 | EB Radar | U |
| ITS37 | SB LT Loop, Video | B,D |
| ITS37 | NB LT Loop, Video | B,D |
| ITS37 | WB Video | G |
| ITS41 | SB and WB Radar | X |

| Phase 3 | | |
|---|---|---|
| ITS Sheet | Work Element | TTC Detail |
| ITS42 | NB Video | D |
| ITS43 | NB Loop and Video | B,D |
| ITS43 | SB Loop and Video | B,D |
| ITS43 | SB Radar | G |
| ITS44 | NB Radar and Video | DD |
| ITS45 | EB Radar and Video | AA |
| ITS46 | WB Loop and Video | B, Y |
| ITS46 | EB Loop and Video | F, Z |
| ITS47 | NB Loop | B,E |
| ITS47 | SB Video and Radar | A |
| ITS47 | WB Video | Y |
| ITS48 | NB Radar | A |
| ITS48 | SB Radar | A |
| ITS49 | SB Radar | A |
| ITS49 | EB Video | A |
| ITS49 | WB Video | D |
| ITS50 | SB Loop,WB Radar and Video | B, E |
| ITS50 | NB Loop, EB Radar and Video | B, E |
| ITS51 | SB Loop,WB Radar and Video | B, E |
| ITS51 | NB Loop, EB Radar and Video | B, E |
| ITS52 | WB Radar and Video | A |
| ITS53 | EB Radar | CC |
| ITS53 | NB Radar | BB |
| ITS54 | SWB Loop | BB |
| ITS54 | SEB Radar | BB |
| ITS54 | NEB Radar | BB |
| ITS55 | WB Loop | BB |
| ITS55 | EB Loop | BB |
| ITS55 | WB Video | G |
| ITS56 | NB Radar | CC |
| ITS56 | SB Radar | A |
| ITS56 | WB Radar | A |
| ITS56 | EB Loop | B,D |
| ITS57 | SB Radar and Video | G |
| ITS57 | EB Radar | A |

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | CRD | 10/02/2019 | ⚠ ADDENDUM #1 | RWP | 10/11/2019 |
| DRAWN BY | CRD | 10/02/2019 | | | |
| REVIEWED BY | RWP | 10/02/2019 | | | |

CITY OF Federal Way

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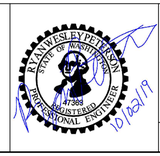
WHAT TRANSPORTATION CAN BE.
12131 113TH AVENUE NE, #203
KIRKLAND, WASHINGTON 98034
(TEL) 425 821-3665
(FAX) 425 825-8434

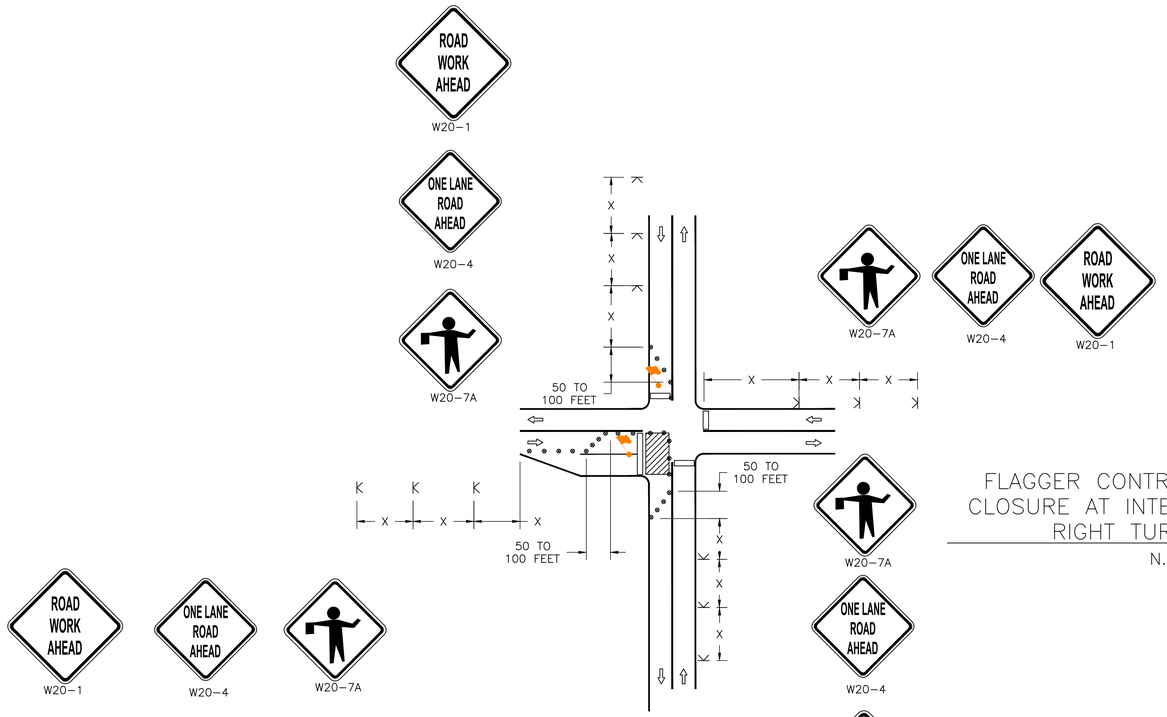



CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

TTC1

TEMPORARY TRAFFIC CONTROL

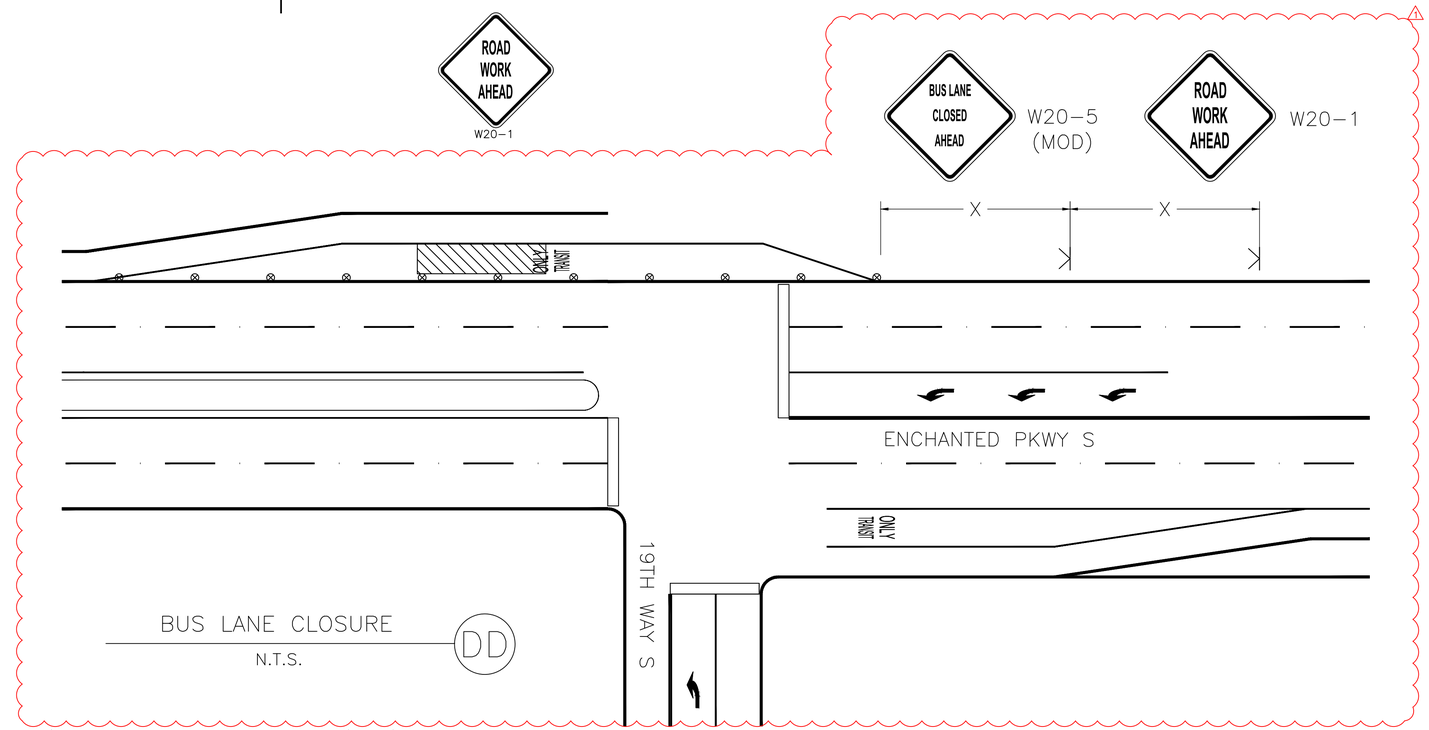
SHEET 48 OF 69 SHEETS




FLAGGER CONTROL FOR LANE CLOSURE AT INTERSECTION WITH RIGHT TURN LANE

N.T.S.

CC




BUS LANE CLOSURE

N.T.S.

DD

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

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

(2) THIS SPACING MAY BE REDUCED IN URBAN AREAS TO FIT ROADWAY CONDITIONS.

BUFFER DATA

LONGITUDINAL BUFFER SPACE = B

| SPEED (MPH) | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 |
|---|---|---|---|---|---|---|---|---|---|---|
| LENGTH (feet) | 155 | 200 | 250 | 305 | 360 | 425 | 495 | 570 | 645 | 730 |

**TRANSPORTABLE ATTENUATOR ROLL AHEAD DISTANCE = R**

| HOST VEHICLE WEIGHT 9,900 TO 22,000 lbs. | | | HOST VEHICLE WEIGHT > 22,000 lbs. | | |
|---|---|---|---|---|---|
| < 45 MPH | 45-55 MPH | > 55 MPH | < 45 MPH | 45-55 MPH | > 55 MPH |
| 100' | 123' | 172' | 74' | 100' | 150' |

**CHANNELIZATION DEVICE SPACING (feet)**

| MPH | TAPER | TANGENT |
|---|---|---|
| 50/70 | 40 | 80 |
| 35/45 | 30 | 60 |
| 25/30 | 20 | 40 |

MINIMUM LANE CLOSURE TAPER LENGTH = L (feet)

| LANE WIDTH (feet) | Posted Speed (mph) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 |
| 10 | 105 | 150 | 205 | 270 | 450 | 500 | 550 | – | – | – |
| 11 | 115 | 165 | 225 | 295 | 495 | 550 | 605 | 660 | – | – |
| 12 | 125 | 180 | 245 | 320 | 540 | 600 | 660 | 720 | 780 | 840 |

LEGEND

| SYMBOL | DESCRIPTION |
|---|---|
| K | TEMPORARY SIGN |
| | WORK ZONE |
| | CHANNELIZATION DEVICE (HIGH VISIBILITY) |
| | ARROW BOARD SUPPORT |
| | ARROW BOARD |
| TMA | TRANSPORTABLE ATTENUATOR |

| | | DATE | REVISION | BY | DATE |
|---|---|---|---|---|---|
| DESIGNED BY | BAS | 10/02/2019 | 1 ADDENDUM #1 | RWP | 10/11/2019 |
| DRAWN BY | BAS | 10/02/2019 | | | |
| REVIEWED BY | RWP | 10/02/2019 | | | |

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CITYWIDE ADAPTIVE SIGNAL CONTROL SYSTEM – ITS IMPROVEMENTS

TEMPORARY TRAFFIC CONTROL

TTC22

SHEET 69 OF 69 SHEETS