Staff Report: Branch Avenue Improvements – Mount Hope – Wards 3, 4 *(For Action)*
Presented at June 24, 2020 BPAC meeting

Project Background

The City of Providence Department of Planning and Development seeks comments from the BPAC regarding plans developed by RIDOT for changes to Branch Avenue between North Main Street and West River Street. The plans were advanced to 90% before coming to the Commission, in violation of Executive Order 2016-1 which established that significant road projects within the city must be reviewed by the Commission at approximately 10% ("conceptual") and 30% design.

RIDOT identified this section of roadway as eligible for safety improvements and identified Highway Safety Improvement Program (HSIP) funds to complete the project. The constraints within which the project exists are:

- It needs to be advertised in 2020 (plans finalized and then procurement initiated)
- HSIP funding is available for intersection improvements
- Relocating utilities exceeds project budget
- Wetlands nearby project area need to be avoided
- Bridge width not able to be changed

Description of Plans

- 2 new traffic signals: at northbound off-ramp near the cemetery & at the southbound off- & on-ramps near Savers
- Removing right-turn slip lane from northbound off-ramp near the cemetery toward North Main Street

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- Replacing non-compliant curb ramps at crosswalks
- Striping to clarify southbound off-ramp and approach to northbound on-ramp

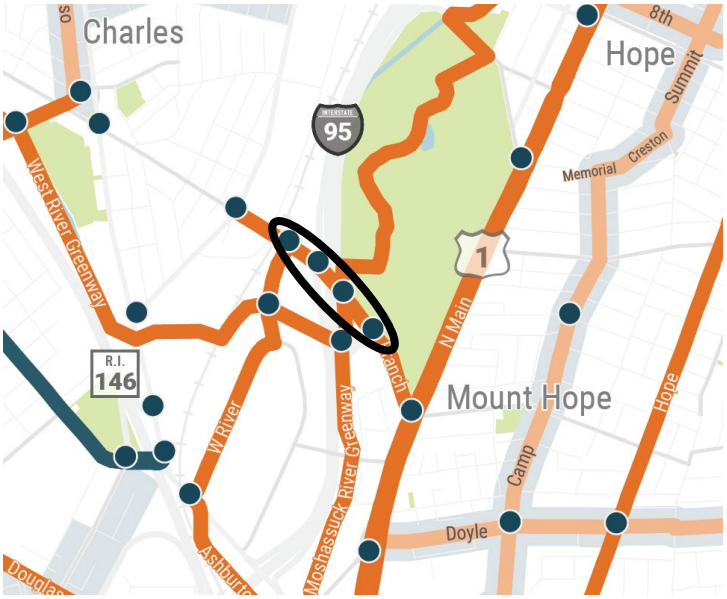
Providence Planning comments sent to RIDOT

- At the intersection of the 95-N off-ramp and Branch Ave, I'm concerned right-turning drivers will proceed on a red light without coming to a complete stop, endangering pedestrians. I recommend the inclusion of a no-turn-on-red sign for the off-ramp here and automatic pedestrian recall for the crosswalk across the off-ramp.
- I am concerned about the proposal for no walk signal across the on-ramp to 95-N. With motorists taking that turn at a high rate of speed I'm not sure what your plan is for making that crossing safe for pedestrians.
- Please change the walk signal across the 95-S on-ramp to be LPI and not push-button actuated.
- This section of Branch Avenue is a critical connection in the planned Urban Trail Network, and yet I see no bicycle facilities included in these plans. Please provide more details about how you will provide a safe and comfortable bicycling experience for all ages and abilities in this project.

Additional staff recommendation

- A crosswalk free of turning conflicts across Branch Avenue at one of the traffic signals near Stop & Shop and Savers should be included.

Respectfully submitted by Alex Ellis.



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FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI		2020	11	20

N
T.F. GREEN AIRPORT EXIT 13
WRONG WAY
EXIT 23
TO 146 NORTH
Charles St
1/2 MILE
I–95 SB OFF RAMP
I–95 NB
I–95 SB
I–95 SB ON RAMP
BRANCH AVENUE
MEET EXISTING PAVEMENT MARKINGS
MEET EXISTING PAVEMENT MARKING
APPROX. S.F.L. PLAT 1300
APPROX. S.F.L. PLAT 1940
APPROX. S.F.L. PLAT 1265
R3–8 24.2.0 30"x30"
R1–2 24.2.0 36"x36"x36"
YIELD
STOP
DO NOT ENTER
ONE WAY
SPEED LIMIT 25
R2–1 24.2.0 30"x36"
R6–1R R6–1L R5–1 24.2.0R 36"x12" 36"x12" 30"x30"
Branch Ave
D3–1 MAST ARM 66"x18"
SOUTH Downtown Providence
95 SOUTH DOWNTOWN PROVIDENCE
PEDESTRIANS BICYCLES MOTOR-DRIVEN CYCLES PROHIBITED
ONLY
RPM 6Y 6W 4Y 12W RBD RSP RRS MED DS
20.1.0 20.2.0 20.3.0 20.4.0
102+00 103+00 104+00 105+00 106+00 107+00 108+00 109+00
303+00 304+00
PC+39.76 PT+39.97
PT+01.90
@ 45° 10' O.C.

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

RI DOT
RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET:
OF:

SCALE: 1"=20'
20 0 20 40
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

HSIP - INTERSECTION SAFETY IMPROVEMENTS - 2020

PROVIDENCE RHODE ISLAND

SIGNING & STRIPING PLAN NO. 1

0153K_V1_011_SIGNSTPE001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI		2020	12	20

BRANCH AVENUE
APPROX. S.H.L. PLAT 1300
MEET EXISTING PAVEMENT MARKING
111+00
112+00
113+00
114+00
115+00
116+00
117+00
PC+59.35
PT+07.47
MATCHLINE TO BELOW
MATCHLINE TO ABOVE
APPROX. S.F.L. PLAT 1265
APPROX. CITY STREET LINE
PC+38.92
118+00
PCC+81.90
R3-2 36"x36" MAST ARM
D3-1 66"x18" MAST ARM
Branch Ave
R2-1 30"x36" 24.2.0
SPEED LIMIT 25
R3-8 30"x30" 24.2.0
R4-7 24"x30" 24.2.0
R3-1 36"x36" MAST ARM
ONE WAY
DO NOT ENTER
TO NORTH INTERSTATE 95
95 NORTH PAWTUCKET
STOP
PEDESTRIANS BICYCLES NON-MOTORIZED TRAFFIC PROHIBITED
Bridge Group 6
RHODE WORKS
I-95 NB ON RAMP
I-95 NB OFF RAMP
ONLY
@ 45° 10' O.C.
MEET EXISTING PAVEMENT MARKINGS
203+17.62
202+00
201+00
PT+00.91

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RI DOT

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

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DATE:
SHEET:
OF:

SCALE: 1"=20'
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SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

HSIP - INTERSECTION SAFETY IMPROVEMENTS - 2020

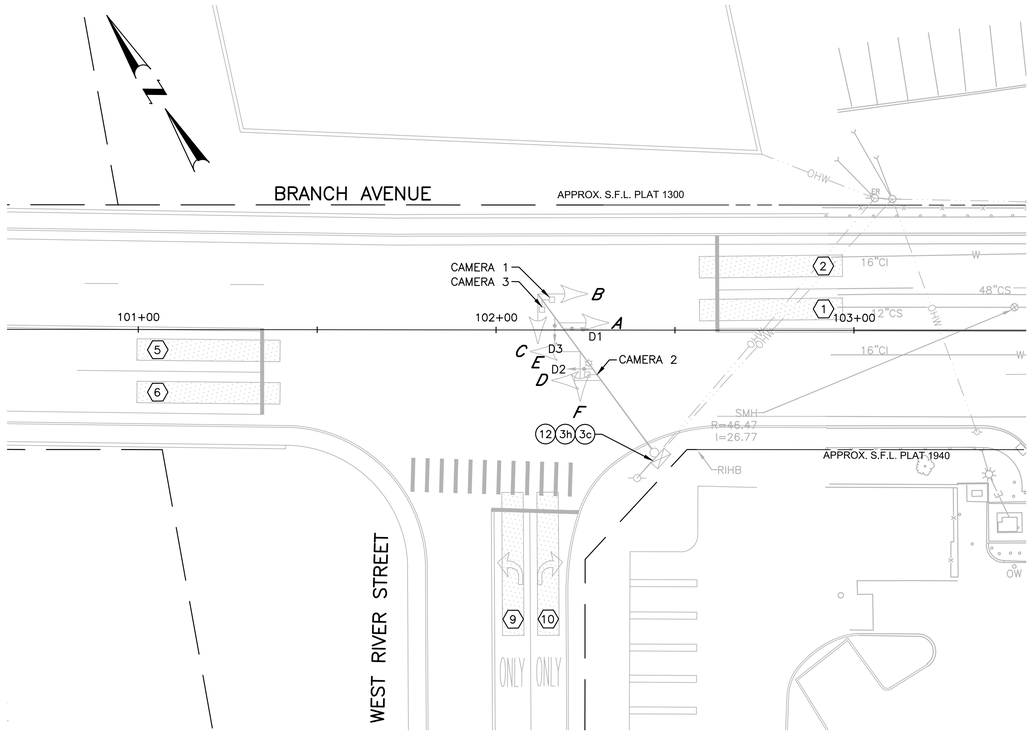
PROVIDENCE RHODE ISLAND

SIGNING & STRIPING PLAN NO. 2

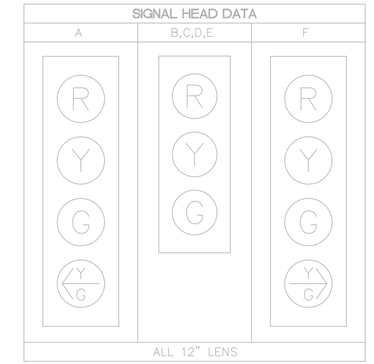
0153K_V1_012_SIGNSTPE002

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
3c	T12.9901	Actuated Controller TS-2, Type 2 in Existing Cabinet
3h	T12.9904	GPS Time Synchronization Unit
12	945.0200	Remove and Salvage Traffic Signal Equipment

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI		2020	13	20



SIGNAL HEAD DATA



NOTES:
1. ALL TRAFFIC SIGNAL HEADS ARE EXISTING.

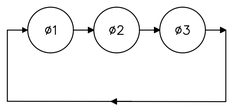
TRAFFIC SIGNAL CONSTRUCTION NOTES:

1. THE ITEM "REMOVE AND SALVAGE TRAFFIC SIGNAL EQUIPMENT" SHALL INCLUDE THE FOLLOWING MAJOR ITEMS:

   (1) LOCAL CONTROLLER SHALL BE REMOVED AND SALVAGED IN ACCORDANCE WITH SECTION 945 OF THE STANDARD SPECIFICATIONS.

2. SEE STANDARD NOTES PLAN AND JOB SPECIFIC PLAN SYMBOLS, LEGEND & NOTES PLAN FOR ADDITIONAL INFORMATION.

PHASE SEQUENCE DIAGRAM



SEQUENCE AND TIMING DIAGRAM

APPROACH	DIRECTION	HOUSING	ø1			ø2			ø3			FLASHING OPERATION
MINIMUM INTERVAL			X			X			X			
VEHICLE EXTENSION			X			X			X			
MAXIMUM 1			X			X			X			
MAXIMUM 2			X			X			X			
YELLOW CLEARANCE				X			X			X		
RED CLEARANCE					X			X			X	
BRANCH AVENUE	WB-LT	A	G (G-)	Y* (Y-)	R*	G	Y	R	R	R	R	FY
BRANCH AVENUE	WB	B	G	Y*	R*	G	Y	R	R	R	R	FY
BRANCH AVENUE	EB	C,D	R	R	R	G	Y	R	R	R	R	FY
WEST RIVER STREET	NB-LT	E	R	R	R	R	R	R	G	Y	R	FR
WEST RIVER STREET	NB-RT	F	R (-G)	R (-Y)	R	R	R	R	G	Y	R	FR
DETECTOR			NON-LOCK			NON-LOCK			NON-LOCK			
RECALL			OFF			SOFT			OFF			
			ø1			ø2			ø3			ø4-ø8
						PERM						NOT USED

SEQUENCE AND TIMING NOTES:
1. FLASHING OPERATION PER M.U.T.C.D.
2. MAXIMUM 1 = NORMAL OPERATION
3. MAXIMUM 2 = NOT USED
4. PED. W/FDW UPON PUSHBUTTON ACTUATION ONLY
5. PERM = PERMISSIVE
6. * = SHALL REMAIN G IF PHASE 2 IS NEXT

COORDINATION DATA

(ALL ENTRIES IN SECONDS)

	PLAN 1	PLAN 2	PLAN 3
CYCLE LENGTH	X	X	X
OFFSET	X	X	X
SPLIT ø1	X	X	X
SPLIT ø2	X	X	X
SPLIT ø3	X	X	X
COORDINATED PHASE	ø2	ø2	ø2

PLAN 1 - MONDAY-FRIDAY	X:00AM-X:00AM
PLAN 2 - MONDAY-FRIDAY	X:00AM-X:00PM
SATURDAY-SUNDAY	X:00AM-X:00PM
PLAN 3 - MONDAY-FRIDAY	X:00PM-X:00PM
FREE - ALL OTHER TIME PERIODS	

NOTES:
1. ø2 "CALL NON ACTUATED" DURING COORDINATION.
2. OFFSET: BEG OF ø2 GREEN.
3. PLAN FORCE OFF/FLOATING FORCE OFF SHALL BE IN EFFECT.
4. SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
5. INHIBIT MAX. TERMINATION SHALL BE IN EFFECT DURING COORDINATION.

VIDEO DETECTOR DATA

DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY (SEC)	CALL PHASE	REMARKS
1	1	6'x40'	3	ø1/ø2	EXISTING
2	1	6'x40'	3	ø2	EXISTING
5	2	6'x40'	3	ø2	EXISTING
6	2	6'x40'	3	ø2	EXISTING
9	3	6'x40'	3	ø3	EXISTING
10	3	6'x40'	3	ø3	EXISTING

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET:
OF:

SCALE: 1"=20'
20 0 20 40
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

HSIP - INTERSECTION SAFETY IMPROVEMENTS - 2020

PROVIDENCE RHODE ISLAND

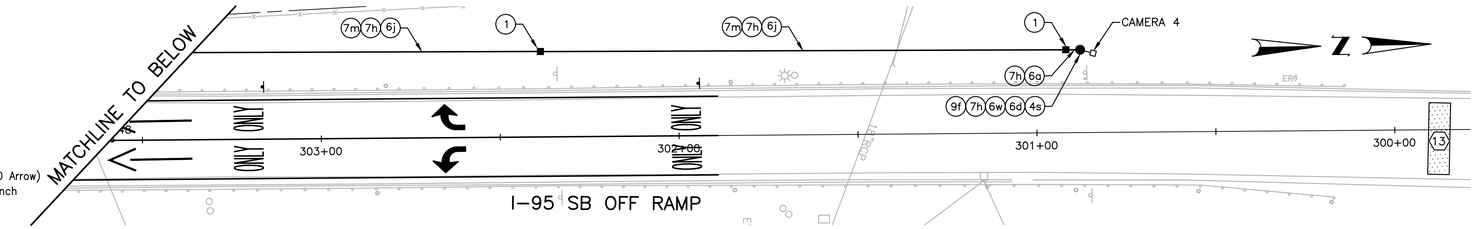
TRAFFIC SIGNAL PLAN NO. 1

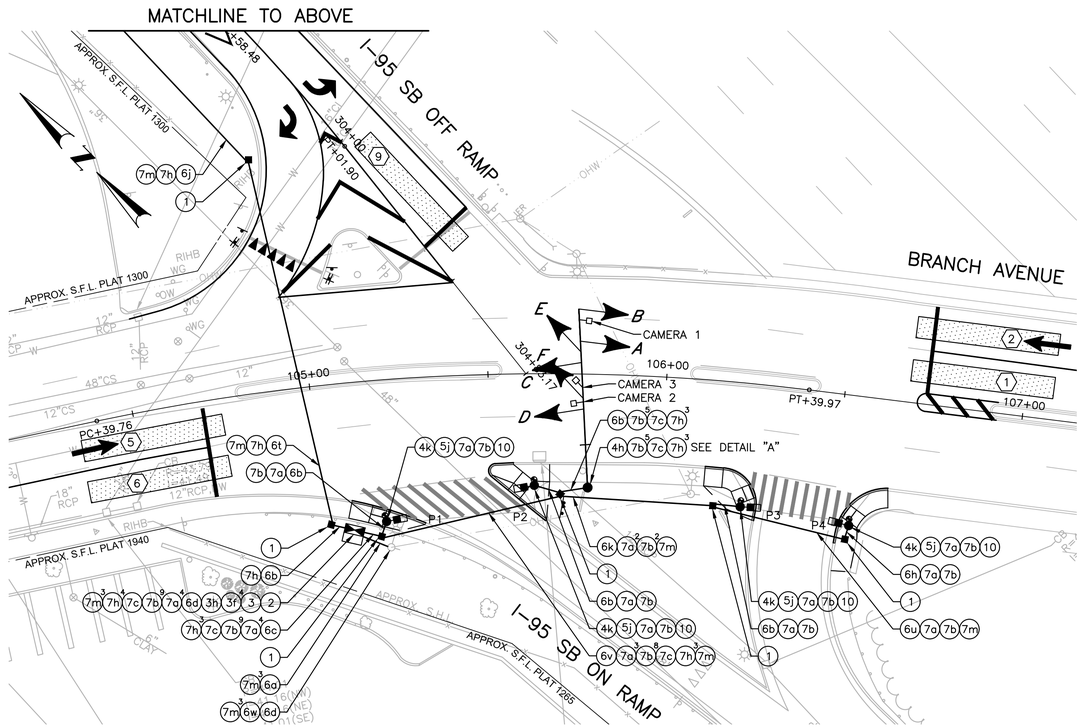
BRANCH AVENUE AT WEST RIVER STREET

0153K_V1_013_TSIGNAL001

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI		2020	14	20

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	T05.0100	Precast Type "A" Handhole Std. 18.2.0
2	T12.9150	Meter Socket W/ Manual Bypass
3	T12.0018	Actuated Controller TS–2, Type 1 w/8 Phase Assembly Ground Mounted Including Foundation and Cabinet Std. 19.1.0
3f	T12.9902	Video Detection System Hardware
3h	T12.9904	GPS Time Synchronization Unit
4h	T11.9902	50 Foot Galvanized Steel Mast Arm Traffic Signal Post and Foundation Std. 19.2.0
4k	T11.2008	Traffic Signal Standard, 8 Foot, Std 19.4.0 Aluminum Pedestal Pole and Foundation
4s	T11.9904	Traffic Signal Wood Span Pole, 40 Foot, Class I
5e	T14.3513	1 Way 3 Section Mast Arm Mounted Signal Head 12 Inch
5f	T14.3516	1 Way 4 Section Mast Arm Mounted Signal Head 12 Inch (w/Dual Ind., Dual Row LED Arrow)
5j	T14.9901	1 Way Pedestal Mounted LED Pedestrian Signal Head With Countdown Timer 12 Inch
6a	T06.1020	2 Inch Rigid Steel Conduit – Underground
6b	T06.1030	3 Inch Rigid Steel Conduit – Underground
6c	T06.1040	4 Inch Rigid Steel Conduit – Underground
6d	T06.2020	2 Inch Rigid Steel Conduit – Overhead
6h	T06.3030	3 Inch Rigid Steel Conduit – Under Existing Pavement
6j	T06.5120	2 Inch Schedule 40 Polyvinyl Chloride Plastic Conduit – Underground
6k	T06.5130	3 Inch Schedule 40 Polyvinyl Chloride Plastic Conduit – Underground
6t	T06.5420	2 Inch Schedule 80 Polyvinyl Chloride Plastic Conduit – Under Existing Pavement
6u	T06.5430	3 Inch Schedule 80 Polyvinyl Chloride Plastic Conduit – Under Existing Pavement
6v	T06.5440	4 Inch Schedule 80 Polyvinyl Chloride Plastic Conduit – Under Existing Pavement
6w	T06.6020	2 Inch Polyvinyl Chloride Plastic Conduit Overhead
7a	T04.5303	14 AWG 3 Conductor Cable
7b	T04.5305	14 AWG 5 Conductor Cable
7c	T04.5307	14 AWG 7 Conductor Cable
7h	T04.9901	Video Detection System Cable (As Specified by Manufacturer)
7m	T04.5001	6 AWG Single Conductor Cable 600v Insulation
9f	T13.9901	Video Detection System Camera
10	T13.8210	Accessible Pedestrian Detector – Pushbutton with Sign





SIGNAL HEAD DATA

A	B	C,D,E,F	P1–P4
R Y G Y/G	R Y Y/G	R Y G	(ALL L.E.D. MODULES)
ALL 12" LENS			

NOTES:
1. ALL TRAFFIC AND PEDESTRIAN SIGNAL HEADS ARE PROPOSED.
2. ALL PROPOSED RED, YELLOW, AND GREEN SIGNAL DISPLAYS SHALL BE EQUIPPED WITH LED MODULES.
3. 5" BACKPLATES WITH A 3" REFLECTIVE STRIP (YELLOW, TYPE IIIB ADHESIVE SHEETING) SHALL BE PROVIDED ON ALL PROPOSED TRAFFIC SIGNAL HEADS.

TRAFFIC SIGNAL CONSTRUCTION NOTES:

1. FINISHED GRADE OF PROPOSED TRAFFIC SIGNAL POLE FOUNDATIONS SHALL BE FLUSH WITH THE EXISTING OR PROPOSED FINISHED GRADE OF THE ADJACENT SIDEWALK. WHERE POLE FOUNDATIONS ARE PROPOSED WITHIN THE LIMITS OF WHEELCHAIR RAMPS, THE TOP OF FOUNDATION GRADE SHALL BE SET TO ALLOW THE POLE BASEPLATE TO BE INSTALLED ABOVE FINISHED WHEELCHAIR RAMP GRADE.
2. THE CONTRACTOR SHALL INSTALL THE SIGNAL CABINET ON A 12" RISER EXTENSION BASE.
3. SEE STANDARD NOTES PLAN AND JOB SPECIFIC PLAN SYMBOLS, LEGEND & NOTES PLAN FOR ADDITIONAL INFORMATION.

SIGNAL HEAD SPACING

SIGNAL HEAD	DISTANCE FROM CENTER OF MAST ARM POLE
A	41'
B	50'
C	35'
D	22'
E	38'
F	25'

PHASE SEQUENCE DIAGRAM

SEQUENCE AND TIMING DIAGRAM

APPROACH	DIRECTION	HOUSING	ø1			ø2			ø4			ø6			FLASHING OPERATION
MINIMUM INTERVAL			X			X			X			X			
VEHICLE EXTENSION			X			X			X			X			
MAXIMUM 1			X			X			X			X			
MAXIMUM 2			X			X			X			X			
YELLOW CLEARANCE				X			X			X			X		
RED CLEARANCE					X			X			X			X	
PED. WALK/CHANGE						X/X									
BRANCH AVENUE	WB–LT	A	R G-	R Y-	R	R	R	R	R	R	R	G	Y	R	FY
BRANCH AVENUE	WB	B	R	R	R	R	R	R	R	R	R	G	Y	R	FY
BRANCH AVENUE	EB	C,D	R	R	R	G	Y	R	R	R	R	R	R	R	FY
I–95 SB OFF RAMP	SB	E,F	R	R	R	R	R	R	G	Y	R	R	R	R	FR
PEDESTRIAN X–ING	E–W	P1–P4	DW	DW	DW	W FDW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
DETECTOR			NON–LOCK			NON–LOCK			NON–LOCK			NON–LOCK			
RECALL			OFF			SOFT			OFF			SOFT			
			ø1			ø2			ø4			ø6			ø3,ø5,ø7,ø8
			Y			Y x– –x x– –x			Y			Y PERM			NOT USED

SEQUENCE AND TIMING NOTES:
1. FLASHING OPERATION PER M.U.T.C.D.
2. MAXIMUM 1 = NORMAL OPERATION
3. MAXIMUM 2 = NOT USED
4. PED. W/FDW UPON PUSHBUTTON ACTUATION ONLY
5. Y = YIELD
6. PERM = PERMISSIVE

COORDINATION DATA

(ALL ENTRIES IN SECONDS)

	PLAN 1	PLAN 2	PLAN 3
CYCLE LENGTH	X	X	X
OFFSET	X	X	X
SPLIT ø1	X	X	X
SPLIT ø2	X	X	X
SPLIT ø4	X	X	X
SPLIT ø6	X	X	X
COORDINATED PHASE	ø2 & ø6	ø2 & ø6	ø2 & ø6

PLAN 1 – MONDAY–FRIDAY	X: 00AM–X: 00AM
PLAN 2 – MONDAY–FRIDAY SATURDAY–SUNDAY	X: 00AM–X: 00PM X: 00AM–X: 00PM
PLAN 3 – MONDAY–FRIDAY	X: 00PM–X: 00PM
FREE – ALL OTHER TIME PERIODS	

NOTES:
1. ø2 & ø6 "CALL NON ACTUATED" DURING COORDINATION.
2. OFFSET: BEG OF ø2 & ø6 GREEN.
3. PLAN FORCE OFF/FLOATING FORCE OFF SHALL BE IN EFFECT.
4. SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
5. INHIBIT MAX. TERMINATION SHALL BE IN EFFECT DURING COORDINATION.

VIDEO DETECTOR DATA

DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY (SEC)	CALL PHASE	REMARKS
1	1	6'x40'	3	ø1/ø6	PROPOSED
2	1	6'x40'	3	ø6	PROPOSED
5	2	6'x40'	3	ø2	PROPOSED
6	2	6'x40'	3	ø2	PROPOSED
9	3	6'x40'	3	ø4	PROPOSED
13	4	20'x6'	10	ø4	PROPOSED QUEUE

QUEUE DETECTOR OPERATION:

1. A QUEUE PRE–EMPT CALL SHALL BE PLACED INTO THE CONTROLLER AFTER THE DELAY TIME ON DETECTOR NO. 6 HAS TIMED OUT (INITIALLY SET AT 10 SECONDS).
2. THE QUEUE PRE–EMPT SHALL CAUSE THE CONTROLLER TO FORCE OFF THE ACTIVE PHASE ONCE MINIMUM GREEN, PEDESTRIAN WALK, PEDESTRIAN CHANGE, YELLOW CHANGE, AND RED CLEARANCE INTERVALS HAVE BEEN SATISFIED FOR THE ACTIVE PHASE AND SHALL THEN SERVICE PHASE 4.
3. QUEUE PRE–EMPT DURATION SHALL INITIALLY BE SET FOR 15 SECONDS.
4. UPON TERMINATION OF QUEUE PRE–EMPTION, THE CONTROLLER SHALL RETURN TO NORMAL OPERATION BY SERVICING PHASES 2 & 6.
5. THE CONTROLLER SHALL BE INITIALLY PROGRAMMED TO PROVIDE A MINIMUM RESERVICE TIME FOR QUEUE PRE–EMPT OF 4 MINUTES.
6. THE QUEUE PRE–EMPTION SHALL OVERRIDE COORDINATION.

DETAIL "A"
1"=10'

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET:
OF:

SCALE: 1"=20'
20 0 20 40
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

HSIP - INTERSECTION SAFETY IMPROVEMENTS - 2020

PROVIDENCE RHODE ISLAND

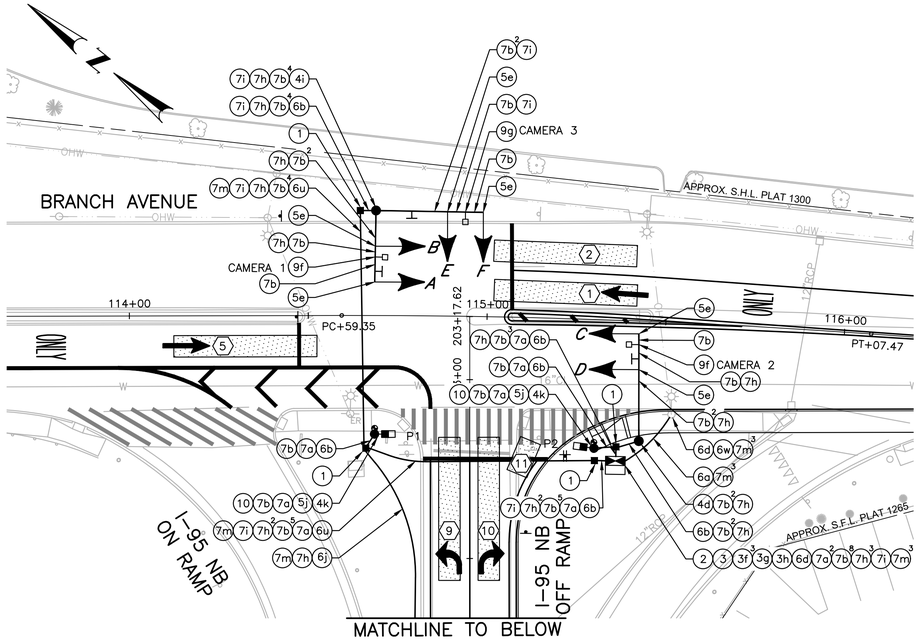
TRAFFIC SIGNAL PLAN NO. 2

BRANCH AVENUE AT I–95 SB RAMPS

0153K_V1_014_TSIGNAL002

ITEM NO.	ITEM CODE	ITEM DESCRIPTION
1	T05.0100	Precast Type "A" Handhole Std. 18.2.0
2	T12.9150	Meter Socket W/ Manual Bypass
3	T12.0018	Actuated Controller TS–2, Type 1 w/8 Phase Assembly Ground Mounted Including Foundation and Cabinet Std. 19.1.0
3f	T12.9902	Video Detection System Hardware
3g	T12.9903	Advanced Video Detection System Hardware
3h	T12.9904	GPS Time Synchronization Unit
4d	T11.9901	30 Foot Galvanized Steel Mast Arm Traffic Signal Post and Foundation Std. 19.2.0
4i	T11.9903	Dual Mast Arm (20x30) Galvanized Steel Mast Arm Traffic Signal Post and Foundation Std. 19.2.0
4k	T11.2008	Traffic Signal Standard, 8 Foot, Std 19.4.0 Aluminum Pedestal Pole and Foundation
4s	T11.9904	Traffic Signal Wood Span Pole, 40 Foot, Class I
5e	T14.3513	1 Way 3 Section Mast Arm Mounted Signal Head 12 Inch
5j	T14.9901	1 Way Pedestal Mounted LED Pedestrian Signal Head With Countdown Timer 12 Inch
6a	T06.1020	2 Inch Rigid Steel Conduit – Underground
6b	T06.1030	3 Inch Rigid Steel Conduit – Underground
6d	T06.2020	2 Inch Rigid Steel Conduit – Overhead
6j	T06.5120	2 Inch Schedule 40 Polyvinyl Chloride Plastic Conduit – Underground
6u	T06.5430	3 Inch Schedule 80 Polyvinyl Chloride Plastic Conduit – Under Existing Pavement
6w	T06.6020	2 Inch Polyvinyl Chloride Plastic Conduit Overhead
7a	T04.5303	14 AWG 3 Conductor Cable
7b	T04.5305	14 AWG 5 Conductor Cable
7h	T04.9901	Video Detection System Cable (As Specified by Manufacturer)
7i	T04.9902	Advanced Video Detection System Cable (As Specified by Manufacturer)
7m	T04.5001	6 AWG Single Conductor Cable 600v Insulation
9f	T13.9901	Video Detection System Camera
9g	T13.9902	Advanced Video Detection System Camera
10	T13.8210	Accessible Pedestrian Detector – Pushbutton with Sign

FED. ROAD DIV. NO.	STATE	FEDERAL AID PROJECT NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
	RI		2020	15	20



SIGNAL HEAD DATA

A,B,C,D	E,F	P1–P2
R, Y, ↺	R, Y, G	(ALL L.E.D. MODULES)
ALL 12" LENS		

NOTES:
1. ALL TRAFFIC AND PEDESTRIAN SIGNAL HEADS ARE PROPOSED.
2. ALL PROPOSED RED, YELLOW, AND GREEN SIGNAL DISPLAYS SHALL BE EQUIPPED WITH LED MODULES.
3. 5" BACKPLATES WITH A 3" REFLECTIVE STRIP (YELLOW, TYPE IIIB ADHESIVE SHEETING) SHALL BE PROVIDED ON ALL PROPOSED TRAFFIC SIGNAL HEADS.

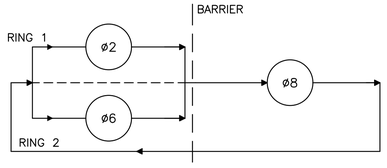
TRAFFIC SIGNAL CONSTRUCTION NOTES:

1. FINISHED GRADE OF PROPOSED TRAFFIC SIGNAL POLE FOUNDATIONS SHALL BE FLUSH WITH THE EXISTING OR PROPOSED FINISHED GRADE OF THE ADJACENT SIDEWALK. WHERE POLE FOUNDATIONS ARE PROPOSED WITHIN THE LIMITS OF WHEELCHAIR RAMPS, THE TOP OF FOUNDATION GRADE SHALL BE SET TO ALLOW THE POLE BASEPLATE TO BE INSTALLED ABOVE FINISHED WHEELCHAIR RAMP GRADE.
2. THE CONTRACTOR SHALL INSTALL THE SIGNAL CABINET ON A 12" RISER EXTENSION BASE.
3. SEE STANDARD NOTES PLAN AND JOB SPECIFIC PLAN SYMBOLS, LEGEND & NOTES PLAN FOR ADDITIONAL INFORMATION.

SIGNAL HEAD SPACING

SIGNAL HEAD	DISTANCE FROM CENTER OF MAST ARM POLE
A	20'
B	10'
C	30'
D	20'
E	20'
F	30'

PHASE SEQUENCE DIAGRAM



SEQUENCE AND TIMING DIAGRAM

APPROACH	DIRECTION	HOUSING	ø2			ø6			ø8			FLASHING OPERATION
MINIMUM INTERVAL			X			X			X			
VEHICLE EXTENSION			X			X			X			
MAXIMUM 1			X			X			X			
MAXIMUM 2			X			X			X			
YELLOW CLEARANCE				X			X			X		
RED CLEARANCE					X			X			X	
PED. WALK/CHANGE			X/X									
BRANCH AVENUE	WB	A,B	R	R	R	G	Y	R	R	R	R	FY
BRANCH AVENUE	EB	C,D	G	Y	R	R	R	R	R	R	R	FY
I–95 NB OFF RAMP	NB	E,F	R	R	R	R	R	R	G	Y	R	FR
PEDESTRIAN X–ING	E–W	P1–P2	W FDW	DW	DW	DW	DW	DW	DW	DW	DW	DARK
DETECTOR			NON–LOCK			NON–LOCK			NON–LOCK			
RECALL			SOFT			SOFT			OFF			
			ø2			ø6			ø8			ø1,ø3,ø4,ø5,ø7
												NOT USED

SEQUENCE AND TIMING NOTES:
1. FLASHING OPERATION PER M.U.T.C.D.
2. MAXIMUM 1 = NORMAL OPERATION
3. MAXIMUM 2 = NOT USED
4. PED. W/FDW UPON PUSHBUTTON ACTUATION ONLY

COORDINATION DATA

(ALL ENTRIES IN SECONDS)

	PLAN 1	PLAN 2	PLAN 3
CYCLE LENGTH	X	X	X
OFFSET	X	X	X
SPLIT ø2	X	X	X
SPLIT ø6	X	X	X
SPLIT ø8	X	X	X
COORDINATED PHASE	ø2 & ø6	ø2 & ø6	ø2 & ø6

PLAN 1 – MONDAY–FRIDAY X:00AM–X:00AM
PLAN 2 – MONDAY–FRIDAY X:00AM–X:00PM SATURDAY–SUNDAY X:00AM–X:00PM
PLAN 3 – MONDAY–FRIDAY X:00PM–X:00PM
FREE – ALL OTHER TIME PERIODS

NOTES:
1. ø2 & ø6 "CALL NON ACTUATED" DURING COORDINATION.
2. OFFSET: BEG OF ø2 & ø6 GREEN.
3. PLAN FORCE OFF/FLOATING FORCE OFF SHALL BE IN EFFECT.
4. SPLIT TIMES EQUAL GREEN PLUS CLEARANCES.
5. INHIBIT MAX. TERMINATION SHALL BE IN EFFECT DURING COORDINATION.

VIDEO DETECTOR DATA

DETECTOR ZONE NO.	CAMERA NUMBER	APPROX. SIZE DET. ZONE	DELAY (SEC)	CALL PHASE	REMARKS
1	1	6'x40'	3	ø6	PROPOSED
2	1	6'x40'	3	ø6	PROPOSED
5	2	6'x40'	3	ø2	PROPOSED
9	3	6'x40'	3	ø8	PROPOSED
10	3	6'x40'	3	ø8	PROPOSED
11	3	6'x10'	3	ø8	PROPOSED
13	4	20'x6'	10	ø8	PROPOSED QUEUE

QUEUE DETECTOR OPERATION:

1. A QUEUE PRE–EMPT CALL SHALL BE PLACED INTO THE CONTROLLER AFTER THE DELAY TIME ON DETECTOR NO. 13 HAS TIMED OUT (INITIALLY SET AT 10 SECONDS).
2. THE QUEUE PRE–EMPT SHALL CAUSE THE CONTROLLER TO FORCE OFF THE ACTIVE PHASE ONCE MINIMUM GREEN, PEDESTRIAN WALK, PEDESTRIAN CHANGE, YELLOW CHANGE, AND RED CLEARANCE INTERVALS HAVE BEEN SATISFIED FOR THE ACTIVE PHASE AND SHALL THEN SERVICE PHASE 8.
3. QUEUE PRE–EMPT DURATION SHALL INITIALLY BE SET FOR 15 SECONDS.
4. UPON TERMINATION OF QUEUE PRE–EMPTION, THE CONTROLLER SHALL RETURN TO NORMAL OPERATION BY SERVICING PHASES 2 & 6.
5. THE CONTROLLER SHALL BE INITIALLY PROGRAMMED TO PROVIDE A MINIMUM RESERVICE TIME FOR QUEUE PRE–EMPT OF 4 MINUTES.
6. THE QUEUE PRE–EMPTION SHALL OVERRIDE COORDINATION.

vhb
1 Cedar Street
Suite 400
Providence, RI 02903
401.272.8100

RHODE ISLAND
DEPARTMENT OF TRANSPORTATION

DESIGNED BY:
CHECKED BY:
DATE:
SHEET:
OF:

SCALE: 1"=20'
20 0 20 40
SCALE IN FEET

REVISIONS			REVISIONS		
NO.	DATE	BY	NO.	DATE	BY

HSIP - INTERSECTION SAFETY IMPROVEMENTS - 2020

PROVIDENCE RHODE ISLAND

TRAFFIC SIGNAL PLAN NO. 3

BRANCH AVENUE AT I-95 NB RAMPS

0153K_V1_015_TSIGNAL003