

**STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
ENERGY FACILITY SITING BOARD**

In re The Narragansett Electric Company :
d/b/a National Grid : Docket No. SB-2008-02
(Rhode Island Reliability Project) :

Supplemental Pre-Filed Testimony of

David J. Beron, P.E., P.M.P.

April 27, 2010

1 Introduction

2 Q. Please state your full name and business address.

3 A. My name is David J. Beron. My address is 40 Sylvan Road, Waltham, MA.

4 Q. By whom are you employed and in what position?

5 A. I am employed by National Grid as a Lead Project Manager and serve as such for the
6 Rhode Island Reliability Project.

7 Q. Have you previously testified in this proceeding?

8 A. Yes. I testified at the preliminary hearing in November, 2008. I filed prefiled and
9 supplemental prefiled testimony and testified at the EFSB hearings on July 14, 2009 and
10 October 19, 2009.

11 Q. What is the purpose of this testimony?

12 A. The purpose of this testimony is to explain an alternative configuration which we have
13 developed for the right-of-way (ROW) between the Cranston—West Warwick boundary
14 and Wakefield Street in West Warwick. I will also update our construction schedule.

15 Q. Why did you seek an alternative configuration in this location?

16 A. At the EFSB hearing on October 19, 2009, Commissioner Flynn pointed out that it
17 appeared there was an undeveloped area adjacent to the west side of the ROW in this
18 location and asked whether it would be possible to widen the ROW and reconfigure the
19 lines in this area. We have investigated and determined that a large parcel west of the
20 ROW was owned by one property owner. We have negotiated with the property owner
21 and on April 16, 2010, we signed an option agreement to purchase a 60 foot wide
22 easement along the west side of the existing ROW.

1 Q. What will this additional width of the ROW allow you to do?

2 A. The additional width will allow us to reconfigure the lines in this section of ROW which
3 extends from approximately the Cranston—West Warwick boundary to the vicinity of
4 Wakefield Street. We propose to construct the new 345 kV line on the west edge of the
5 existing ROW and leave the existing 115 kV lines and the existing 345 kV line
6 essentially in their present configurations on the ROW. The proposed cross-section is
7 shown on Attachment DJB-14 to this testimony and the new configuration is shown on
8 revised Sheets 31 and 32 (of 40) of Figure 2-2 of the ER which is Attachment DJB-15.

9 Q. Mr. Beron, Mr. Flynn asked during the hearing on October 19 for an estimate of what the
10 costs and other impacts would be for widening the ROW in this area. Have you
11 examined these impacts?

12 A. Yes. We have examined the impacts of the proposed 60 foot widening of the ROW in
13 this area. We have determined that although we will have to purchase additional ROW,
14 the cost of this purchase will be offset by a reduction in the number of structures that are
15 being relocated. In the proposed plan we were rebuilding two 115 kV lines and
16 constructing a new 345 kV line. In this particular segment of the Project we will leave
17 the existing 115 kV lines in their present locations and structure configurations to the
18 greatest extent practical. Transition structures from vertical to the existing horizontal
19 configurations would be located just north of Wakefield Street and in the vicinity of the
20 Cranston—West Warwick town boundary. It may be necessary to reconstruct some of
21 the existing 115 kV structures although the location and configurations generally will not
22 change.

1 We have also asked VHB to prepare an analysis of the wetlands impacts of this
2 reconfiguration. I am attaching this analysis as Attachment DJB-16 to this testimony.
3 You will note that although there are some additional impacts, they do not represent a
4 significant increase in permanent fill to be placed in wetlands. There will be greater
5 temporary impacts associated with accessing the transitional structures north of
6 Wakefield Street and the new structure sites on the 115 and 345 kV lines south of
7 Wakefield Street which will all be located in wetlands, and there will be some tree
8 clearing in wetlands that will result in a permanent conversion from forested to shrub
9 wetland cover type. Finally, the new configuration will complicate the construction
10 process and possibly extend the construction schedule.

11 Q. Is it National Grid's intention to reconfigure the Project in the segment between the
12 Cranston—West Warwick boundary and Wakefield Street from what was originally
13 proposed and presented to the EFSB?

14 A. Yes it is, subject to the EFSB's approval.

15 Q. Are there any drawbacks from using this configuration?

16 A. The major drawback is one of Project timing. At the same time that we are pursuing the
17 EFSB's approval, we are pursuing approval from the DEM Freshwater Wetlands section
18 for the Project. The reconfiguration of the Project in this segment will require an
19 amendment to our wetlands application and may delay DEM's review of the application.

20 Q. What is the timing of your amendment?

21 A. We expect to be filing the amended wetland permit application within the next couple of
22 weeks together with National Grid's responses to DEM's recent comment letter. This

1 submission would then become part of our Application to Alter Freshwater Wetlands
2 originally filed with the DEM on June 26, 2009. As this application will be subject to a
3 45-day public comment period that will begin once the DEM has reviewed the
4 information submitted, National Grid is concerned that project permits will not be in
5 hand in time to meet critical dates for line outages that must be scheduled six months or
6 more in advance of planned work. We note that the EFSB has the authority under
7 §42-98-10(e) of the Siting Act to request that DEM expedite the review of freshwater
8 wetlands permit applications. We request that the Siting Board exercise this power and
9 seek expedited processing for our Application to Alter Freshwater Wetlands.

10 Q. Mr. Beron, have you updated the Project schedule?

11 A. Yes. A revised schedule is attached as DJB-17. The expected project completion date
12 has been extended into Spring 2013. There are two primary reasons for this schedule
13 extension. First, we have spent several months developing and pursuing the
14 reconfiguration of the Project in the West Warwick area. As such, the target date for
15 completing the licensing & permitting effort has been extended to September 2010.
16 Secondly, in further refining the construction sequencing and outage planning for the
17 Project, it has become evident that the construction duration will be somewhat longer
18 than originally anticipated due to the difficulty associated with taking the existing
19 facilities out of service. The construction schedule for this project is very complicated
20 since we will be rebuilding two existing, active 115 kV lines that are needed to supply
21 National Grid customers in much of Rhode Island.

1 Q. What is the difficulty involved in scheduling outages?

2 A. The scheduling of outages requires close coordination among project planners,
3 dispatchers and transmission coordinators. The work must be scheduled and sequenced
4 so as to minimize reliability risks and any chance of interrupting electricity supply to our
5 customers. For example, if we had one of the two existing 115 kV transmission lines out
6 of service to perform Project work, and the other remaining 115 kV transmission line
7 were to experience a problem, the entire supply to many National Grid substations and
8 customers could potentially be interrupted. Therefore, the work must be properly
9 planned and sequenced and largely performed during lighter load timeframes. The
10 electric system in Rhode Island experiences both summer and winter peaks; as such, it is
11 not possible to schedule lengthy outages in the middle of summer or winter. Thus our
12 most productive construction windows are spring (March through June) and fall
13 (September through November.) To help illustrate the constraints, complexities, and
14 timescales involved with executing the construction phase of the Project, I have
15 attached two exhibits. Attachment DJB-18 is a One Line Diagram that illustrates the
16 facilities affected by the Rhode Island Reliability Project, and the degree to which the
17 facilities and the work are interconnected. This diagram shows the various substations
18 that are interconnected to the 115 and 345 kV transmission lines. Five of these
19 substations (Farnum Pike, Wolf Hill, Putnam Pike, Johnston and West Cranston) rely
20 entirely on the S-171 and T-172 lines for their supply. These lines also have generation
21 resources interconnected to them which must be maintained for load support.
22 Attachment DJB-19 is a Preliminary Outage Plan which illustrates how the work must be

1 segmented, sequenced and planned around the available Spring and Fall outage windows
2 to help minimize reliability exposures.

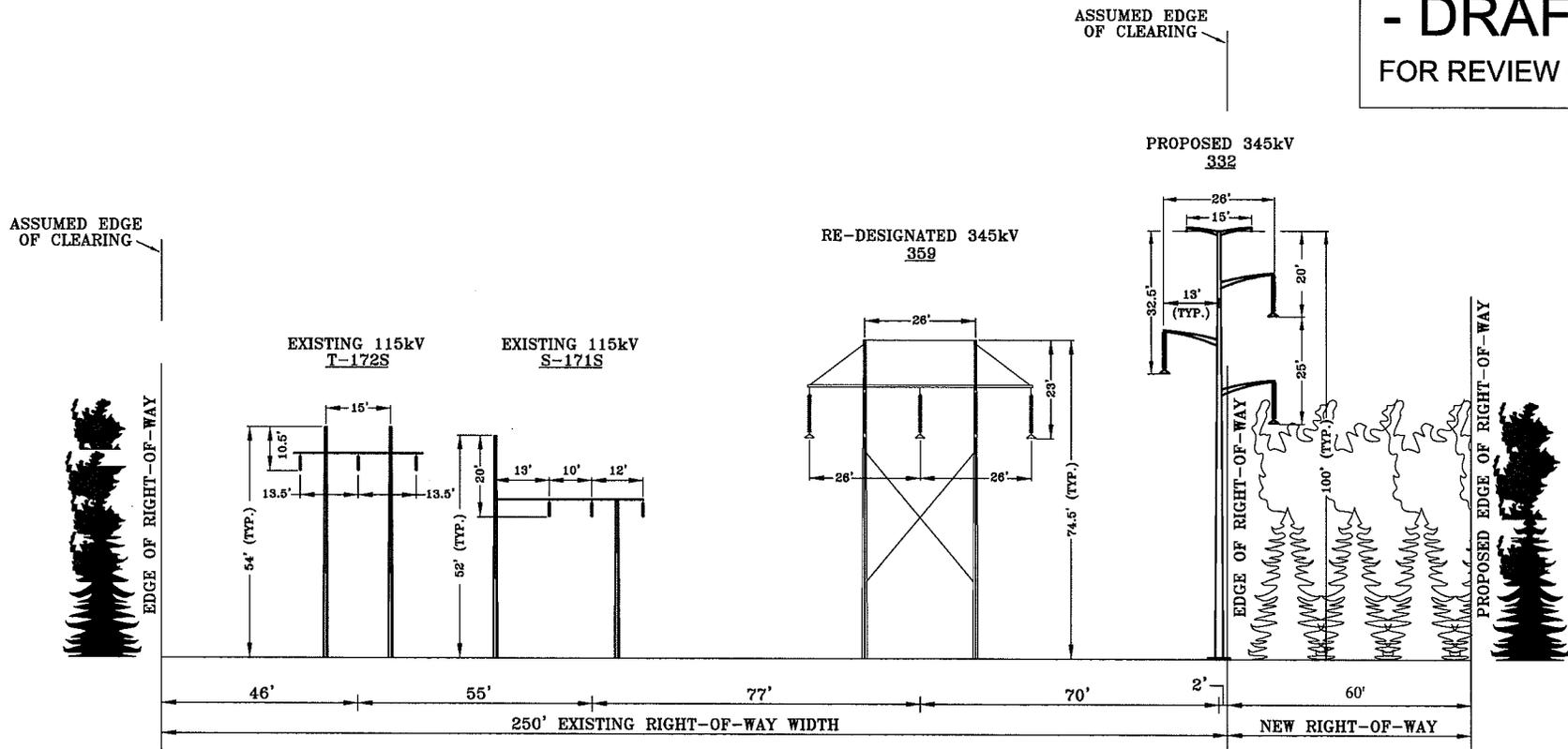
3 Q. Does this conclude your testimony?

4 A. Yes, it does.

Attachments

- DJB-14 Revised Cross-Section (Cranston—West Warwick boundary to Wakefield Street)
- DJB-15 Revised Sheets 31 and 32 of 40 (ER Fig. 2-2)
- DJB-16 Analysis of Wetlands Impacts of West Warwick Reconfiguration
- DJB-17 Revised Project Schedule (ER Fig. 4-11)
- DJB-18 One Line Diagram — Facilities affected by Rhode Island Reliability Project
- DJB-19 Preliminary Outage Plan — Rhode Island Reliability Project (4/23/10)

- DRAFT -
FOR REVIEW ONLY



LOOKING SOUTH
OPTION 1 NORTH OF WAKEFIELD ST.
CRANSTON & WEST WARWICK, RI

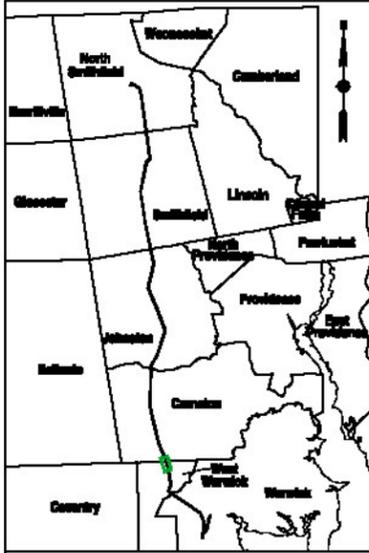
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NEW ENGLAND EAST WEST SOLUTIONS (NEEWS)
WEST FARNUM TO KENT COUNTY

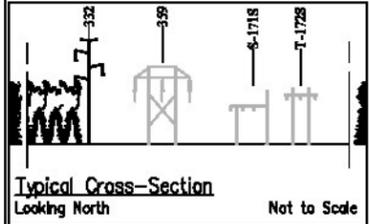
NORTH OF WAKEFIELD ST.
CROSS-SECTION WF-KC

SCALE: NONE REV: A DATE: 10-26-09

Match to Sheet 30



Locus Map



- Source:
- Orthophotography Provided by Sewall, Inc. 2007.
 - Streams (1997) and Town Lines (1989) Provided by Rhode Island GIS
 - Proposed Pole Locations Provided by Power Engineers, Inc. 2008
 - Wetlands Provided by VHB, Inc. 2007 and 2010.

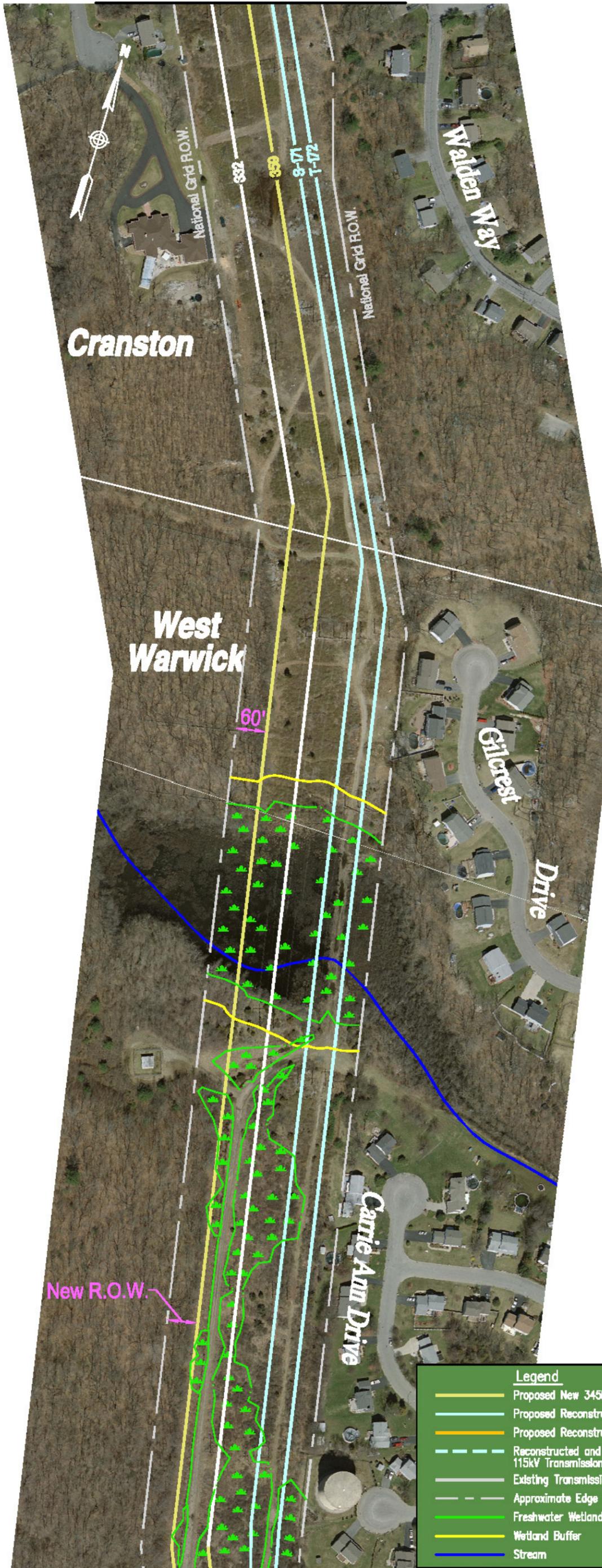
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Proposed Project Alignment

Rhode Island Reliability Project

Figure 2-2
(Sheet 31 of 40)

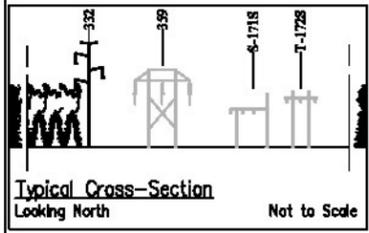


Legend	
	Proposed New 345kV Transmission Line
	Proposed Reconstructed 115kV Transmission Line
	Proposed Reconstructed 345kV Transmission Line
	Reconstructed and Reconstructed 115kV Transmission Line
	Existing Transmission Line
	Approximate Edge of R.O.W.
	Freshwater Wetland Boundary
	Wetland Buffer
	Stream

Match to Sheet 32



Locus Map



Source:
 • Orthophotography Provided by Sewall, Inc. 2007.
 • Streams (1997) and Town Lines (1989) Provided by Rhode Island GIS
 • Proposed Pole Locations Provided by Power Engineers, Inc. 2008
 • Wetlands Provided by VHB, Inc. 2007 and 2010.

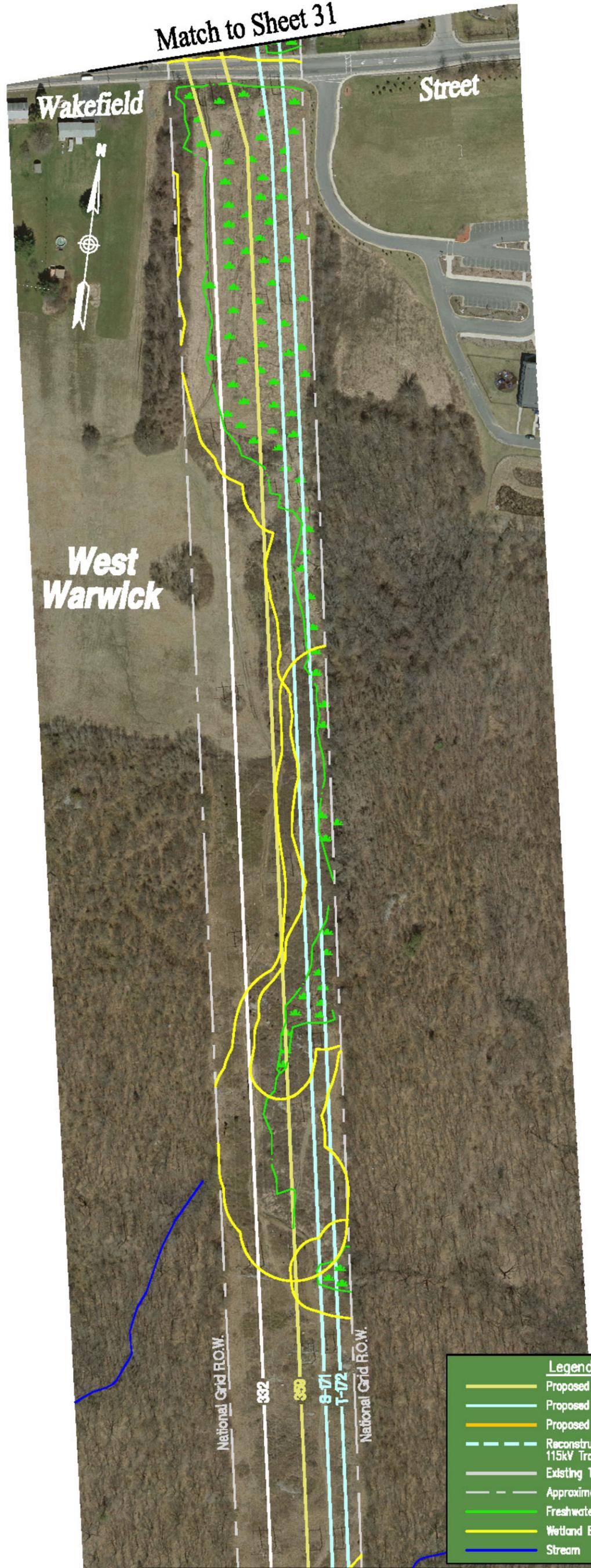


Proposed Project Alignment

Rhode Island Reliability Project

Figure 2-2
 (Sheet 32 of 40)

Revised April 27, 2010



Legend	
	Proposed New 345kV Transmission Line
	Proposed Reconstructed 115kV Transmission Line
	Proposed Reconstructed 345kV Transmission Line
	Reconstructed and Reconducted 115kV Transmission Line
	Existing Transmission Line
	Approximate Edge of R.O.W.
	Freshwater Wetland Boundary
	Wetland Buffer
	Stream

Match to Sheet 33

Wetland Impact Summary Table for the Wakefield Street Alternative vs the Preferred Route

Preferred Route

Wetland #	Vegetation Clearing		Structure Construction		Temporary Disturbance	
	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)
114	-	-	-	150.9	5,965	10,360
115	-	-	-	-	2,427	-
116	-	-	-	-	437	-
117	-	-	-	-	-	-
118	-	-	-	-	-	-
119	-	-	301.8	150.9	36,279	39,851
Total:	0.0	0.0	301.8	301.8	45,108	50,211

Alternative Route

Wetland #	Vegetation Clearing		Structure Construction		Temporary Disturbance	
	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)	Palustrine wetland (SF)	Perimeter/Riverbank Wetland (SF)
114	8,146	6,451	-	50.3	6,122	131
115	-	-	100.6	-	11,213	-
116	-	-	-	-	-	-
117	2,800	-	-	-	1,911	-
118	-	-	50.3	-	4,787	-
119	-	-	402.4	201.2	54,552	39,023
Total:	10,946.0	6,451.0	553.3	251.5	78,585	39,154

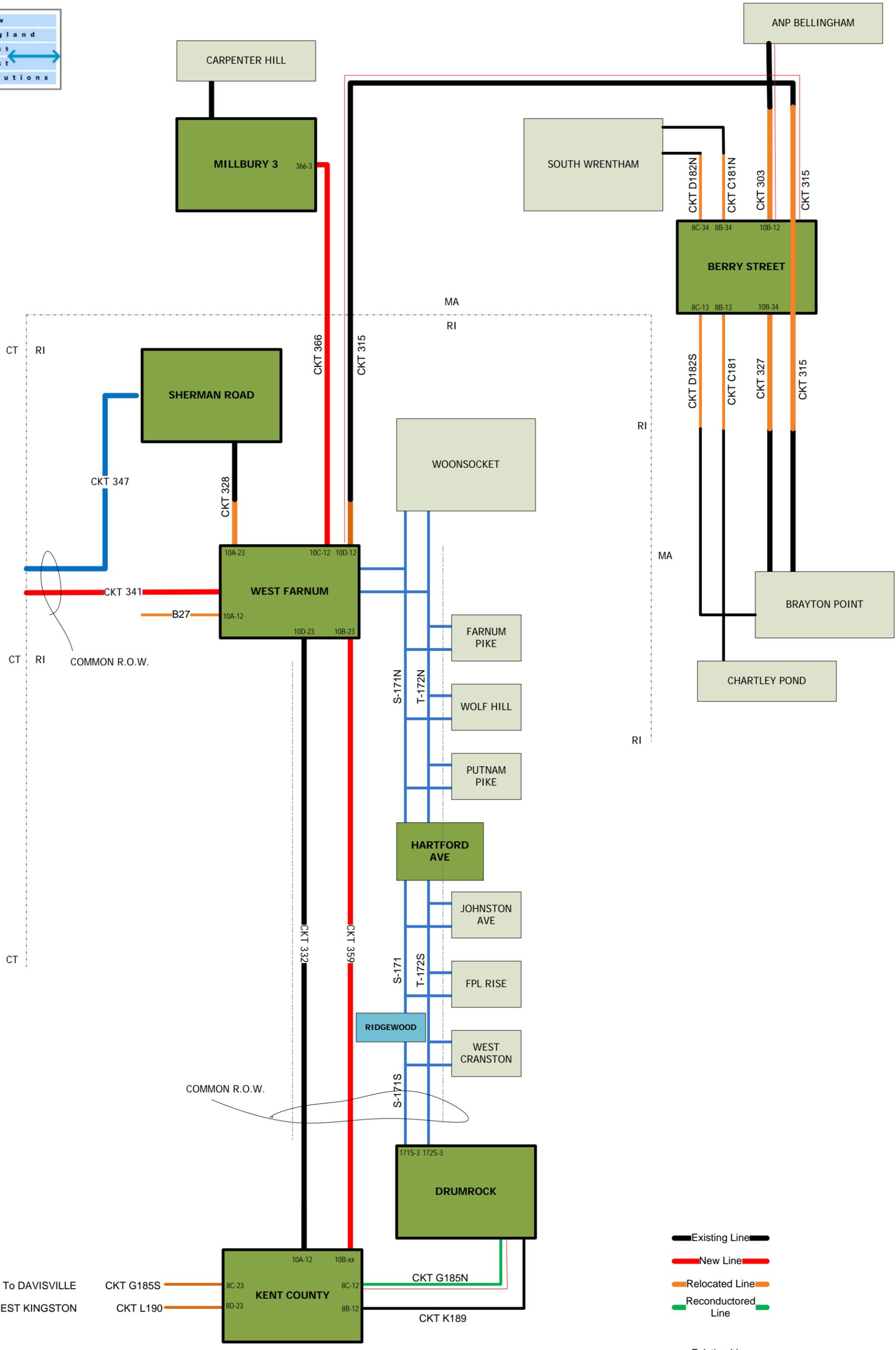
Activity	2008				2009				2010				2011				2012				2013							
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4				
Preliminary Engineering	■																											
Licensing and Permitting			■																									
Engineering			■																									
Procurement									■																			
Construction													■															



Vanasse Hangen Brustlin, Inc.

Figure 4-11
Project Schedule
Rhode Island Reliability Project

NEWS PROJECT SCOPE



- Existing Line
- New Line
- Relocated Line
- Reconstructed Line
- Rebuilt Line
- New OPGW



172/171/332 Outages
(Preliminary)

	Step No.	Line	From	To	Start	Complete	Description
Fall 2010 (Foundations)	1	T-172N	West Farnum/Woonsocket	Hartford Ave.	9/13/2010	9/13/2010	Install Air Gap Insulators @ existing structures 172-75 (Farnum Pike) & 172-93 (Wolf Hill Sub)
	2	T-172N	172-75 Air Gap	172-93 Air-Gap	9/13/2010	9/28/2010	Install Foundation 172-65A (Farnum Tap), 172-80A, 171-80A (Wolf Hill Tap)
	3	T-172N	West Farnum/Woonsocket	Hartford Ave.	9/28/2010	9/28/2010	Close Air Gap @ existing structures 172-75 (Farnum Pike).
	4						The T172N line foundation work is coordinated with Bus #1 rebuild @ Hartford Ave.
	5						
	6	S-171N	West Farnum/Woonsocket	Hartford Ave.	9/29/2010	9/29/2010	Remove Jumpers @ ex171-75 (North of Farnum Tap). Install Air Gap @ ex171-95 (south of Wolf Hill)
	7	S-171N	Open Jumpers @ 171-75	Air Gap @ 171-95	9/29/2010	10/11/2010	Install Foundations 171-65A, 171-65B1,B2, B3
	8	S-171N	West Farnum/Woonsocket	Hartford Ave.	10/11/2010	10/11/2010	Restore Jumpers @ ex171-75 (North of Farnum Tap) and @ ex171-95 (south of Wolf Hill)
	9						
	10	T-172S	Hartford Ave./ FPL	Drumrock	10/12/2010	10/12/2010	Open Jumpers @ ex172-155
	11	T-172S	Open Point @ ex172-155	Hartford Ave./FPL	10/12/2010	10/26/2010	Install Foundations 172-126, 172-126A, 126B, 126C, and 171-127 and 172-135, 172-138
	12	S-171N	West Farnun	Hartford Ave.	10/30/2010	11/24/2010	359-4, 359-7, 359-33, 359-36, 359-49, 359-69, 359-83, 359-96
	13	T-172S	Drumrock	Open Point @ 172-155	11/29/2010	11/29/2010	Open Jumpers @ ex172-173
	14	T-172S	Open Point @ ex172-155	Open Point @ 172-173	11/29/2010	12/8/2010	Install Foundations 172-146A, 172-146B1, 146B2, 146B3, 171-147A, 172-151
	15	T-172S	Hartford Ave./ FPL	Drumrock	12/8/2010	12/8/2010	Close Jumpers @ ex172-155 ex172-173
	16	T172S	Hartford Ave./ FPL	Drumrock	12/9/2010	12/9/2010	Open Jumpers @ex 172-167
	17	T-172S	Drumrock	Open Point @ 172-167	12/9/2010	12/16/2010	Install Foundations 172-.155, 172-178A, 172-178B1, B2, B3, and 171-179A - Open Jumpers ex172-205A
	18	T-172S	Hartford Ave./ FPL	Drumrock	12/17/2010	12/17/2010	Close Jumpers @ ex172-167
	19	T172S	Hartford Ave.	Drumrock	12/18/2010	12/18/2010	Open Jumpers @ ex 172-205A
	20	T-172S	Open Point @ ex172-205A	Drumrock	12/18/2010	12/23/2010	Install Foundations 172-190, 172-198, 172-208, 172-213, 172-234, 172-236, 171-191, 171-199, 171-209, 171-213, 171-234
	21	T172S	Hartford	Drumrock	12/23/2010	12/23/2010	Close Jumper @172-205A
22							
Spring 2011 (Fdns.)	23	T172S	Hartford Ave.	Drumrock	1/3/2011	1/3/2011	Open Jumpers @ ex 172-205A
	24	T-172S	Open Point @ ex172-205A	Drumrock	1/3/2011	1/21/2011	Install Foundations 172-190, 172-198, 172-208, 172-213, 172-234, 172-236, 171-191, 171-199, 171-209, 171-213, 171-234
	25	T172S	Hartford	Drumrock	1/21/2011	1/21/2011	Close Jumper @172-205A
	26	S-171S	Hartford Ave.	Drumrock	3/1/2011	3/31/2011	359-119, 359-121, 359-134, 359-138, 359-173, 359-181, 359-191, 359-195, 359-216
27							
28	T-172N	West Farnun	Hartford Ave.	4/1/2011	4/30/2011	172-20, 172-23, 171-23, 172-49, 171-49, 172-52, 171-52, 172-65, 172-91, 172-99, 172-112, 172-135	
29							

172/171/332 Outages
(Preliminary)

Fall 2011 (Overhead)	30	T-172S	Hartford Ave.	Drumrock	8/29/2011	8/29/2011	Open Jumpers @ ex172-155
	31	T-172S	Hartford Ave.	Air Gap @ ex172-155	8/29/2011	9/15/2011	Build 172 from 172-126 to 172-138 - Open Switch @ 172-137
	32	T-172S	Drumrock	Air Gap @ ex172-155	9/16/2011	9/16/2011	Open Jumpers @ ex172-167
	33	T-172S	Open Switch @ 172-137	Open Jumpers @ 172-155			Build 172-138 to 172-155, leave jumpers off 172-151
	34	T-172S					Close Switch 172-137
	35	T-172S	Drumrock	Open Point @ 172-155			Open Jumpers @ ex172-205
	36	T-172S	172-151	Open Point @ 172-205			Build 172-155 to 172-173
	37	T-172S	Drumrock	Open Point @ 172-205			Build 172-173 to 172-198, Open south side switch @ 172-178A
	38	T-172S	Switch @ 172-137	Open Point 172-151			Install Jumpers @ 172-151
	39	T-172S	Open Switch @ 172-178A	Drumrock		12/14/2011	Build 172 from 172-198 to 172-136
	40				12/14/2011	Close Switch @ 172-178A (W.Cranston)	
	41						
	42	S-171S			12/15/2011	3/5/2012	Build 171 South from 171-127 to 171-234 (NO OUTAGE REQUIRED)
	43						
Spring 2012 (Overhead)	44	S-171S	Hartford Ave.	Drumrock	3/6/2012	3/30/2012	Cutover @ Hartford Ave., Cutover @ Wakefield Shuffle, Pull from 171-234 to 171-236, Make up taps @ Johnston Tap, FPL and W. Cranston
	45						
	46	T-172N	West Farnum/Woonsocket	Hartford Ave.	4/3/2012	4/3/2012	Remove Jumpers @ 172-16, Install Air Gap @ ex172-75A (Farnum Tap)
	47	T-172N	Open Point @ 172-16	ex172-75A			Build from 172-18 to 172-65
	48	T-172N	Hartford Ave.	ex172-75A			Set Str. 172-65A, Install Wire from 172-65 to 172-65A, transfer tap wire - Install Jumpers @ 172-16, Close Switch @ West Farnum/Woonsocket to 172-65A - Install Air Gap @ ex172-93
	49	T-172N	172-65A	Open Point @ ex172-93			Build from 172-66 to 172-80
	50	T-172N	West Farnum/Woonsocket	172-65A			Set Str. 172-80A, Install Wire from 172-80 to 172-80A, transfer tap wire - Install Wire from 172-65A to 172-66 - Energize from West Farnum/Woonsocket to 172-80A@ Wolf Hill
	51	T-172N	Hartford Ave.	Open Point @ ex172-93			Install Air Gap @ ex172-104 (Putnum Pike)
52	T-172N	172-80A	Open Point @ ex172-104			Build from 172-81 to 172-90	
	53	T-172N	West Farnum/Woonsocket	172-80A		6/8/2012	Set Str. 172-91, Install Wire from 172-90 to 172-91, transfer tap wire - Install wire from 172-80A to 172-81 - Energize from West Farnum/Woonsocket to 172-90 (Putnum Pike)
	54	T-172N	Hartford Ave.	Open Point @ 172-90	6/8/2012	7/7/2012	Build from 172-91 to Hartford Ave.
	55	T-172N				7/7/2012	Complete 172 North
	56						
	57	S-171N			7/9/2012	10/10/2012	Build 171 North from 171-127 to 171-234 (NO OUTAGE REQUIRED)
	58						
Fall 2012	59	S-171N	West Farnum/Woonsocket	Hartford Ave.	9/17/2012	10/10/2012	Cutover - 172 North
	60						
	61	332	West Farnum	Kent County	10/11/2012	10/27/2012	Cutover - 332 North
	62	332	West Farnum	Kent County	10/11/2012	10/20/2012	Cutover - 332 Wakefield Shuffle
	63	332	West Farnum	Kent County	10/11/2012	10/29/2012	Cutover - 332 South