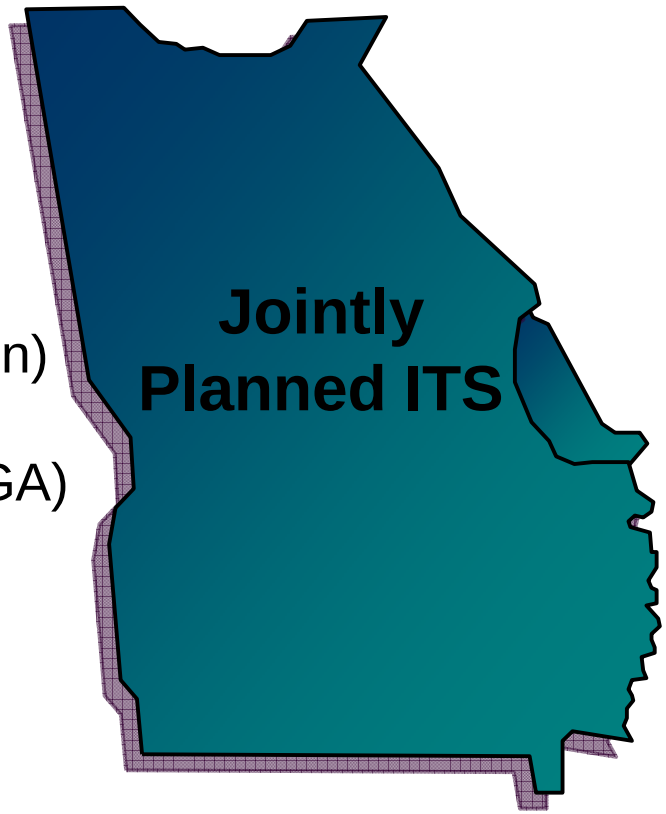
Southeastern Region Transmission Planning

East Region

Georgia Integrated Transmission System (ITS)

- Dalton Utilities
- GTC (Georgia Transmission Corporation)
- MEAG (Municipal Electric Authority of GA)
- Southern Company Transmission



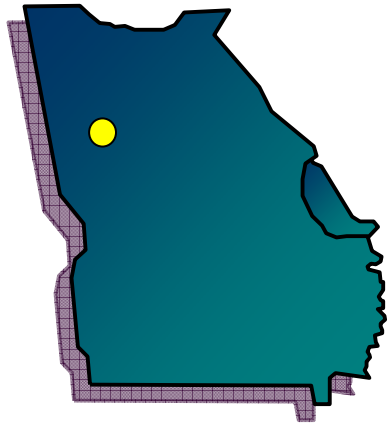
Southeastern Region Transmission Planning

Expansion Item ITS-1a

Factory Shoals

- Create a 230 / 115 kV network substation at Factory Shoals.
- Install one 230 / 115 kV 300 MVA transformer.
- Tap the Adamsville – Douglasville 230 kV line from Buzzard Roost for 230 kV source using existing line.
- Create a 115 kV network station by breakering up the Douglasville – Greenbriar 115 kV line.

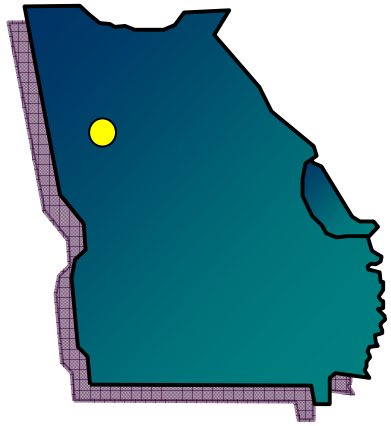
2011 ITS-1a



Southeastern Region Transmission Planning

Expansion Item ITS-1b

2011 ITS-1b



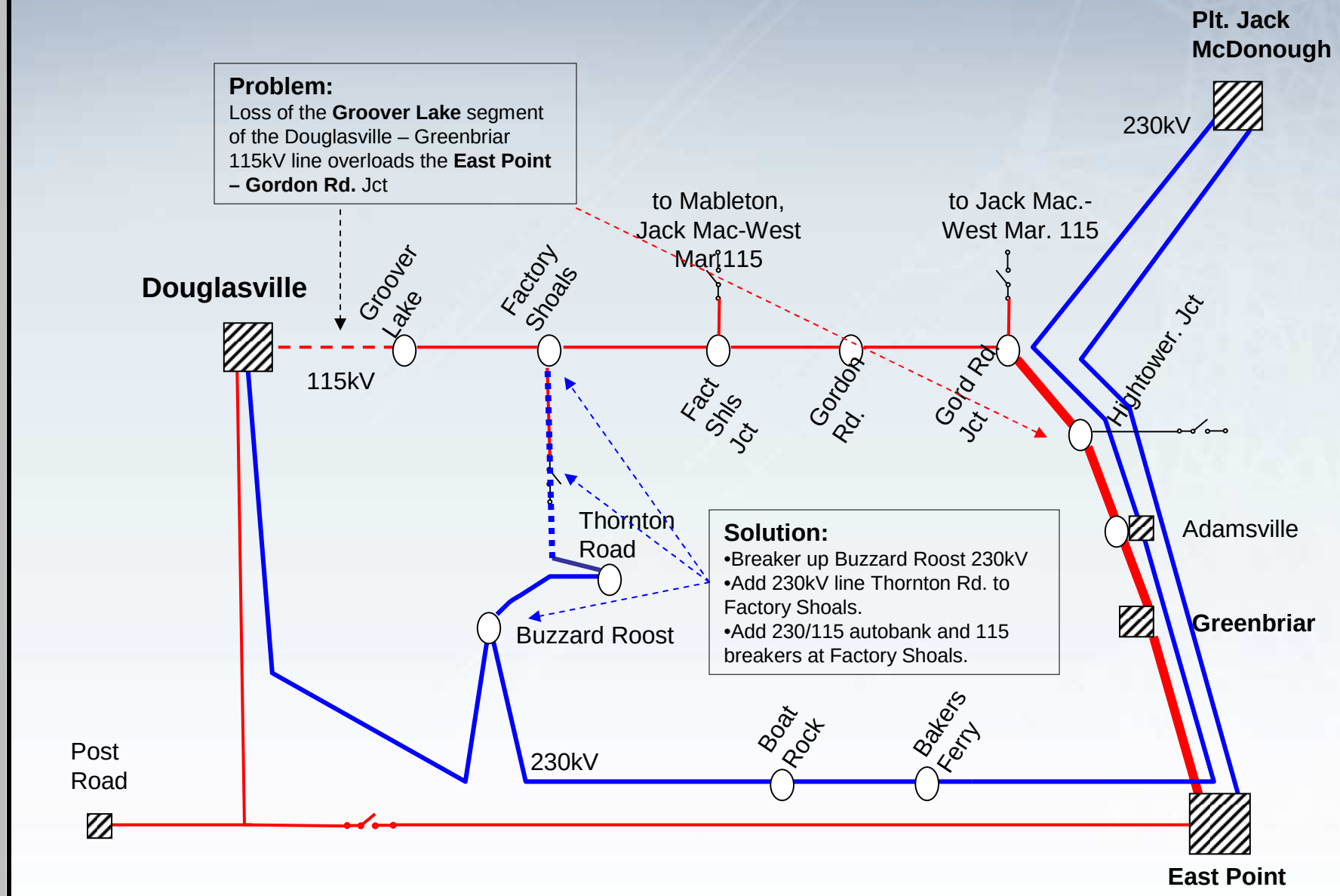
Factory Shoals

- Install three 230 kV breakers at Buzzard Roost, looping in the Adamsville- Douglasville 230 kV line, with a third terminal serving Factory Shoals. Tap the Adamsville – Douglasville 230 kV line from Buzzard Roost for 230 kV source using existing line.

- Alleviates the overload of Gordon Road – Hightower 115 kV T.L., Adamsville – Greenbriar 115 kV T.L. and the Douglasville 230 / 115 kV transformer given various contingencies.

Factory Shoals

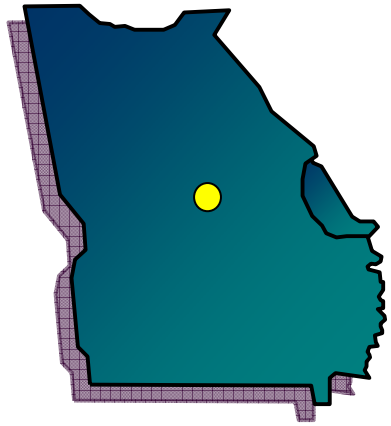
2011 ITS-1



Southeastern Region Transmission Planning

Expansion Item ITS-2

2011 ITS-2



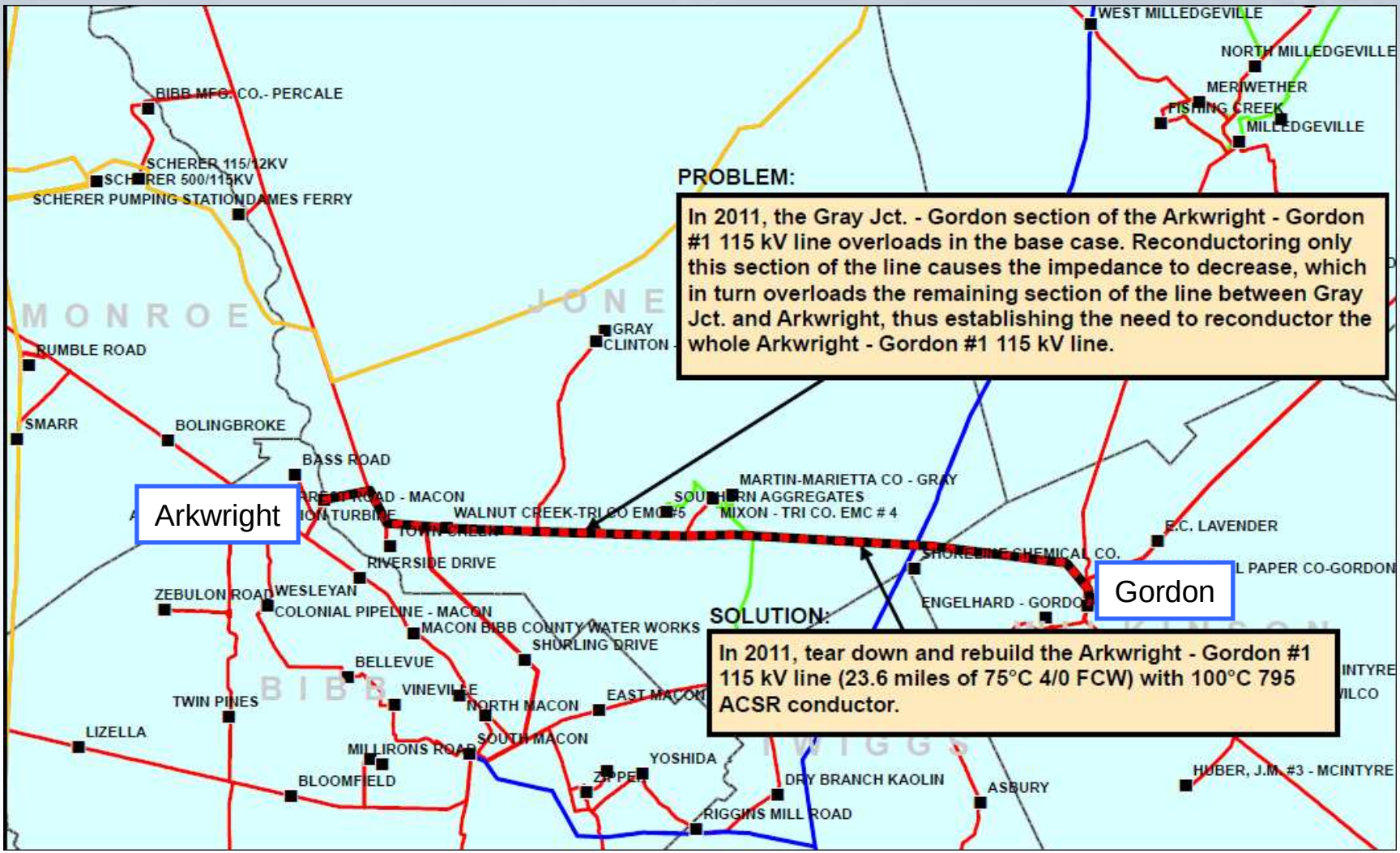
Arkwright – Gordon #1 115 kV Transmission Line

- Rebuild the Arkwright – Gordon #1 115 kV Transmission Line (23.6 miles) with 795 ACSR conductor at 100°C.

- This line becomes thermally overloaded given multiple contingencies in 2011.

Arkwright – Gordon #1 115 kV T.L.

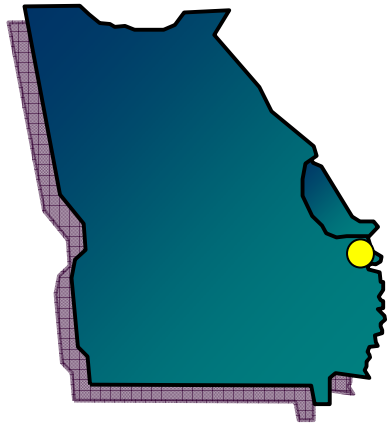
2011 ITS-2



Southeastern Region Transmission Planning

Expansion Item ITS-3

2012 ITS-3



Kraft – McIntosh 230 kV T.L.s

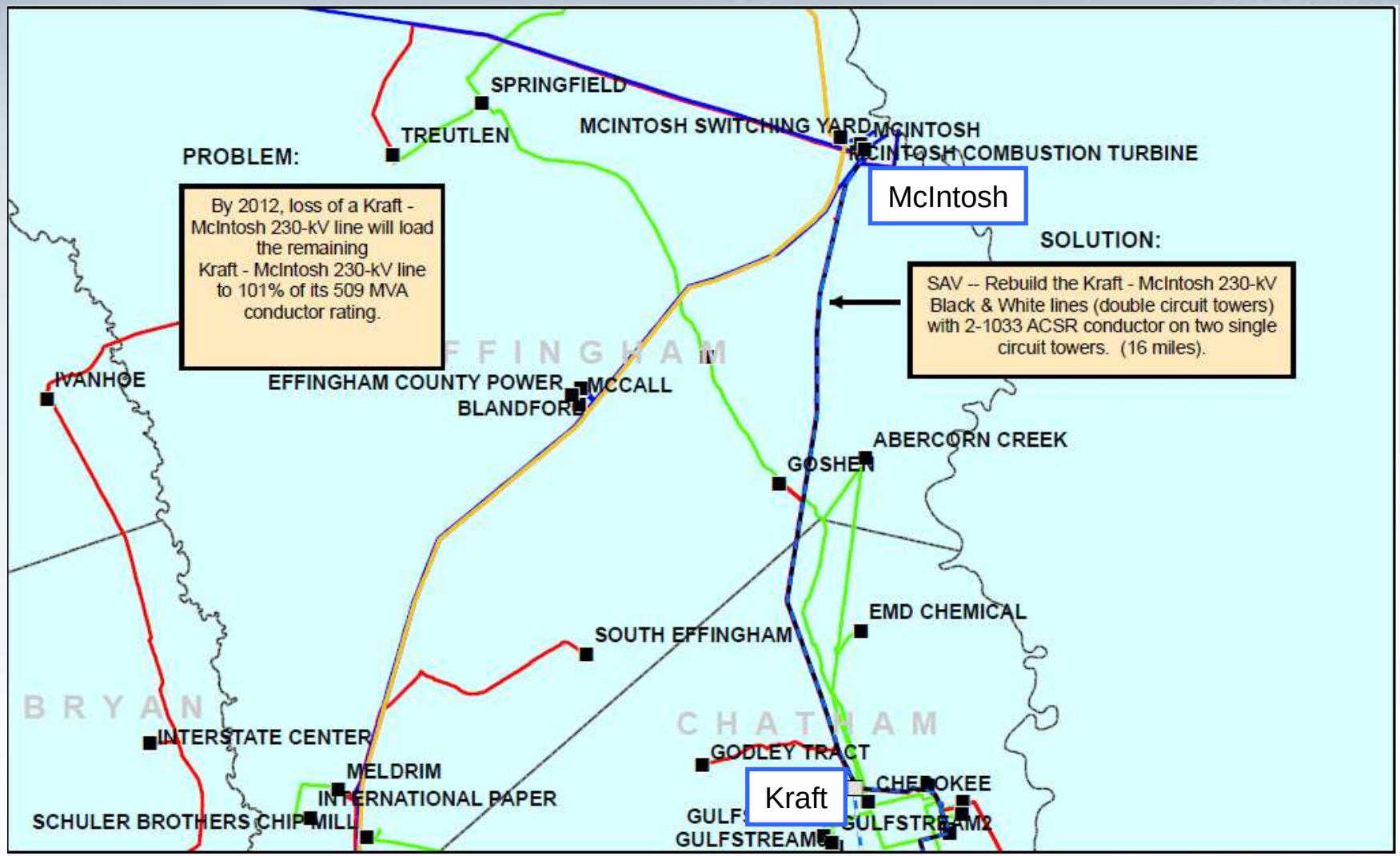
- Rebuild 16 miles along the Kraft – McIntosh Black and White 230 kV T.L.s with 2 – 1033 ACSR.

- The loss of either Kraft – McIntosh 230 kV T.L. will overload the parallel 230 kV T.L.

**Advanced from 2013 in 2009 expansion plan*

Kraft – McIntosh 230 kV T.L.s

2012 ITS-3

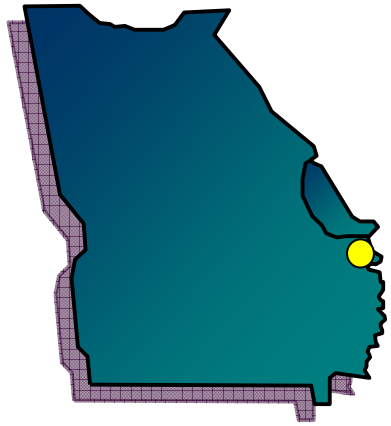


Southeastern Region Transmission Planning

Expansion Item ITS-4

2013 ITS-4

McIntosh – Blandford – Meldrim 230 kV T.L.s



- Reconductor 18.2 miles along the McIntosh – Blandford – Meldrim Black and White 230 kV T.L.s.

- The loss of either McIntosh – Meldrim 230 kV T.L. will overload the parallel 230 kV T.L.

**Advanced from 2017 in 2009 expansion plan*

McIntosh – Blandford – Meldrim 230 kV T.L.s

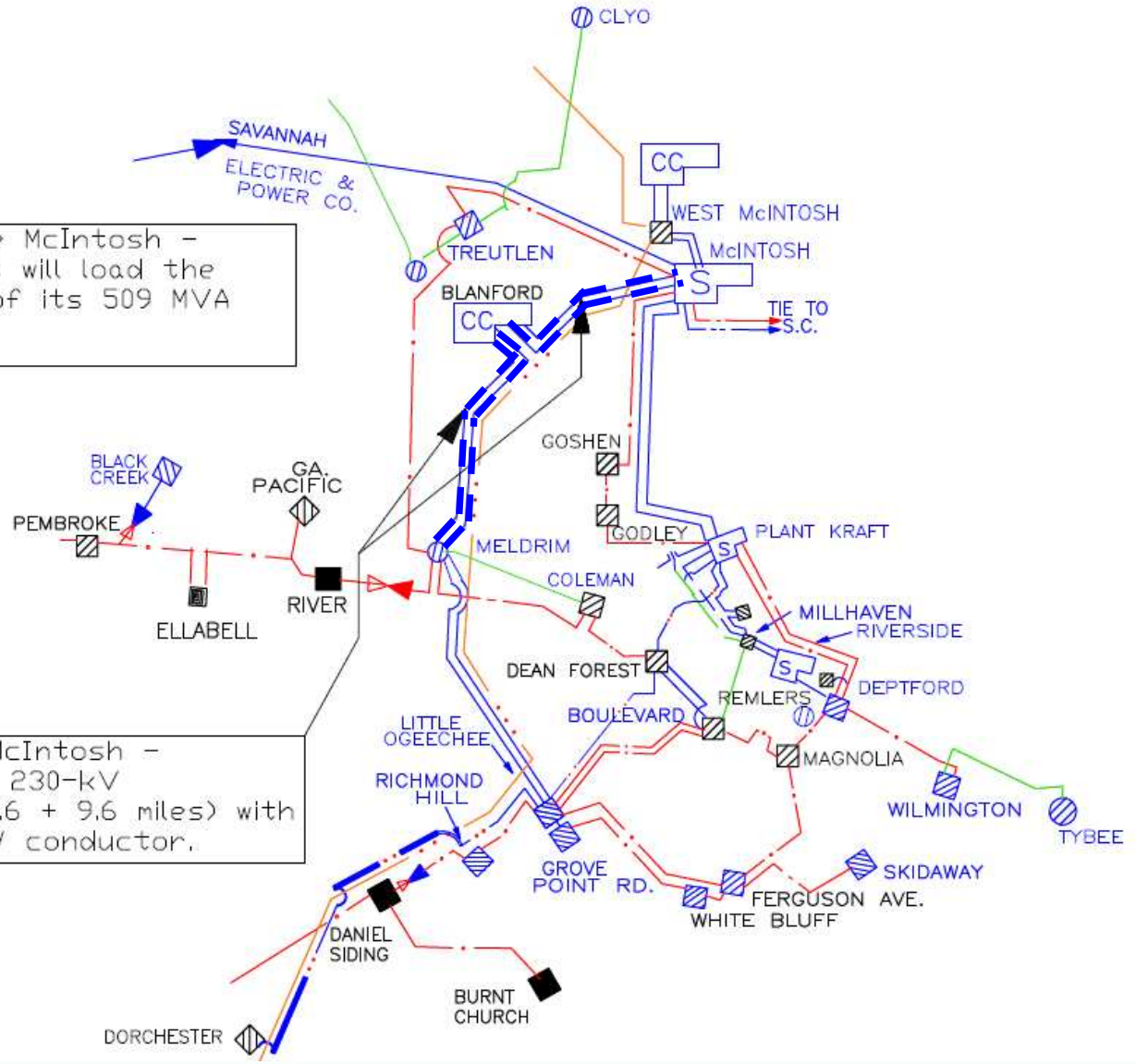
2013 ITS-4

PROBLEM

Loss of one of the McIntosh – Meldrim 230-kV lines will load the other line to 101% of its 509 MVA conductor rating.

SOLUTION

Re-conductor the McIntosh – Blandford – Meldrim 230-kV Black/White lines (8.6 + 9.6 miles) with 210C 1-1622 ACCR/TW conductor.



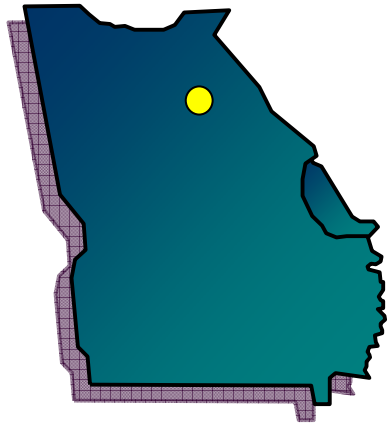
Southeastern Region Transmission Planning

Expansion Item ITS-5a

2015 ITS-5a

East Walton 500 / 230 kV Project

- Construct a new 500 /230 kV Substation at East Walton.
- Construct a new Rockville 500 kV Switching Station.
- Construct a new 500 kV T.L. from the new Rockville 500 kV Switching Station to the new East Walton 500 / 230 kV substation.
- Construct 230 kV T.L. from East Walton to Jacks Creek

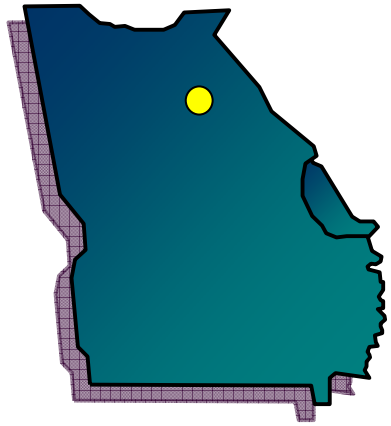


Southeastern Region Transmission Planning

Expansion Item ITS-5b

2015 ITS-5b

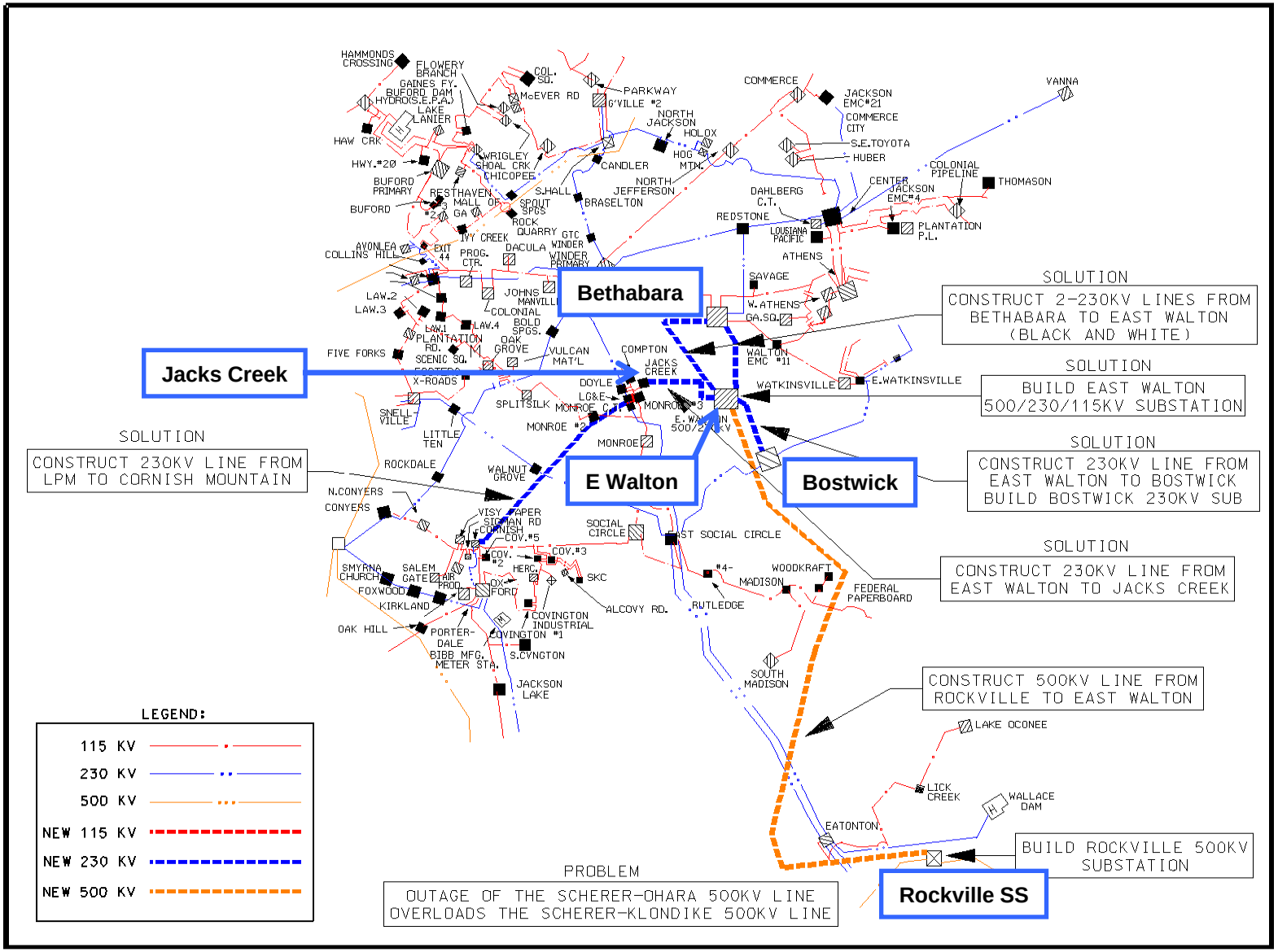
East Walton 500 / 230 kV Project



- Construct a new 230 kV T.L. from East Walton to the new Bostwick Switching Station.
- Construct two new 230 kV T.L. from Bethabara to East Walton.
- Reconductor Bostwick – East Watkinsville 230 kV T.L. and Center Primary – Clarksboro 230 kV T.L. Replace line traps at Center and East Watkinsville.
- The loss of the Klondike – Scherer 500 kV T.L. will thermally overload the Klondike – O'Hara 500 kV T.L.

East Walton 500 / 230 kV Project

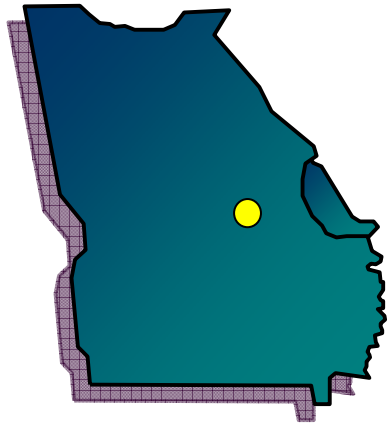
2015 ITS-5



Southeastern Region Transmission Planning

Expansion Item ITS-6

2016 ITS-6



Hatch – Offerman 230 kV T.L.

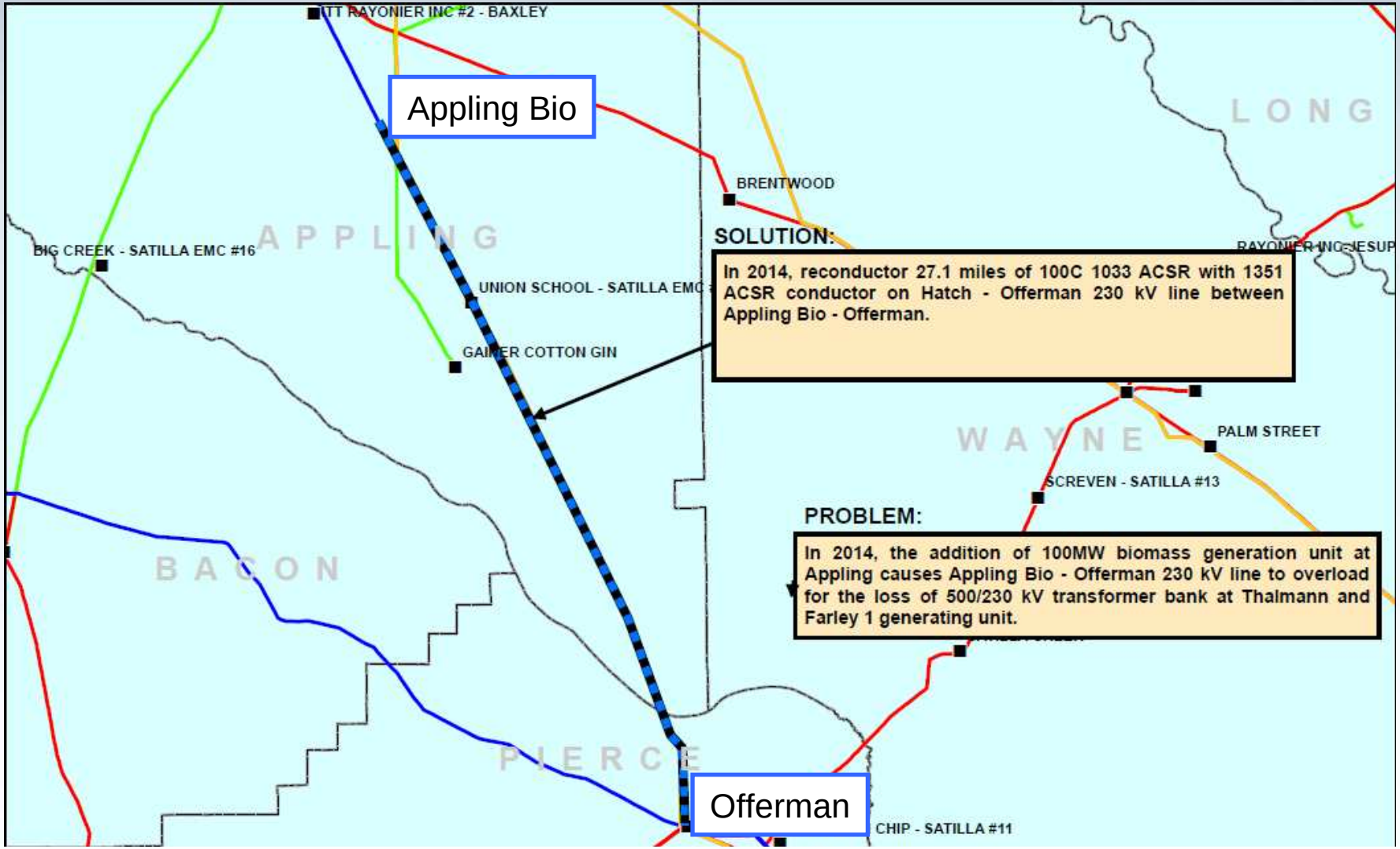
- Reconductor 27.1 miles of 230 kV T.L. from Appling Biomass to Offerman.

- The loss of the 500 / 230 kV transformer at Thalmann, with Farley Unit # 1 offline, causes this section to become overloaded.

**Delayed from 2014 in 2009 expansion plan – timing to be re-evaluated in second five year analysis*

Hatch – Offerman 230 kV T.L.

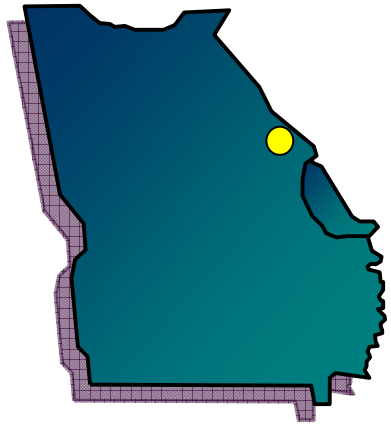
2016 ITS-6



Southeastern Region Transmission Planning

Expansion Item ITS-7

2016 ITS-7



Goshen – Waynesboro 115 kV T.L.

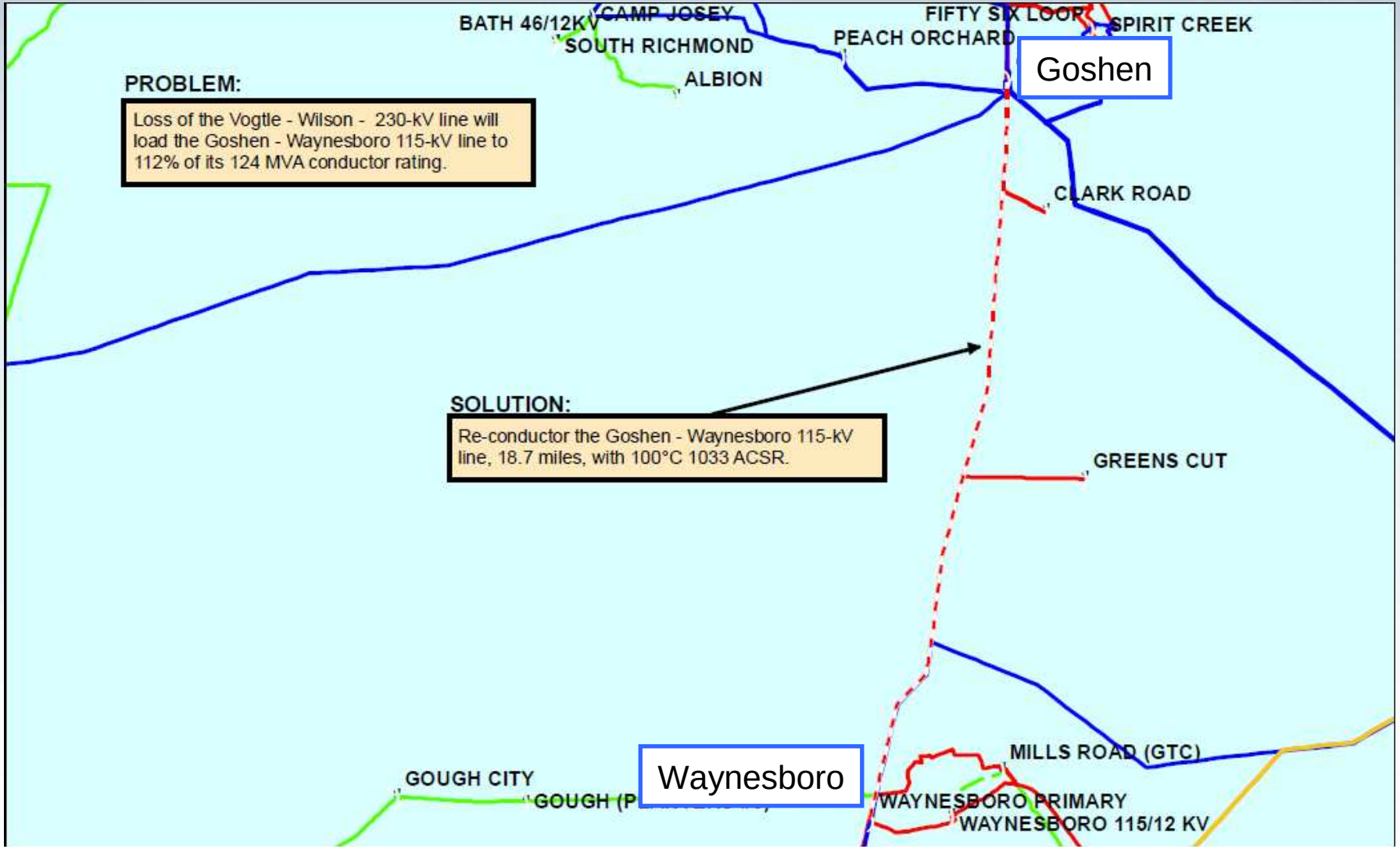
- Reconductor 18.7 miles along the Goshen – Waynesboro 115 kV T.L. with 1033 ACSR.

- The loss of the Wilson – Waynesboro 230 kV T.L., with Hatch Unit #1 offline, will overload the Goshen – Waynesboro 115 kV T.L.

**Delayed from 2014 in 2009 expansion plan – timing to be re-evaluated in second five year analysis*

Goshen – Waynesboro 115 kV T.L.

2016 ITS-7

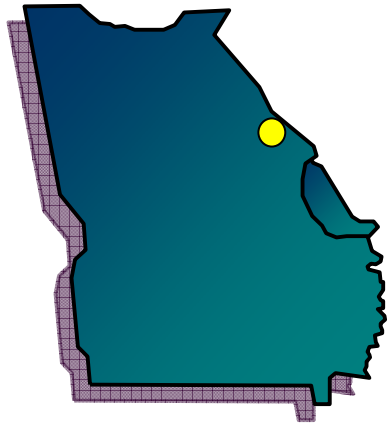


Southeastern Region Transmission Planning

Expansion Item ITS-8

2016 ITS-8

Thomson Primary – Vogtle 500 kV Project



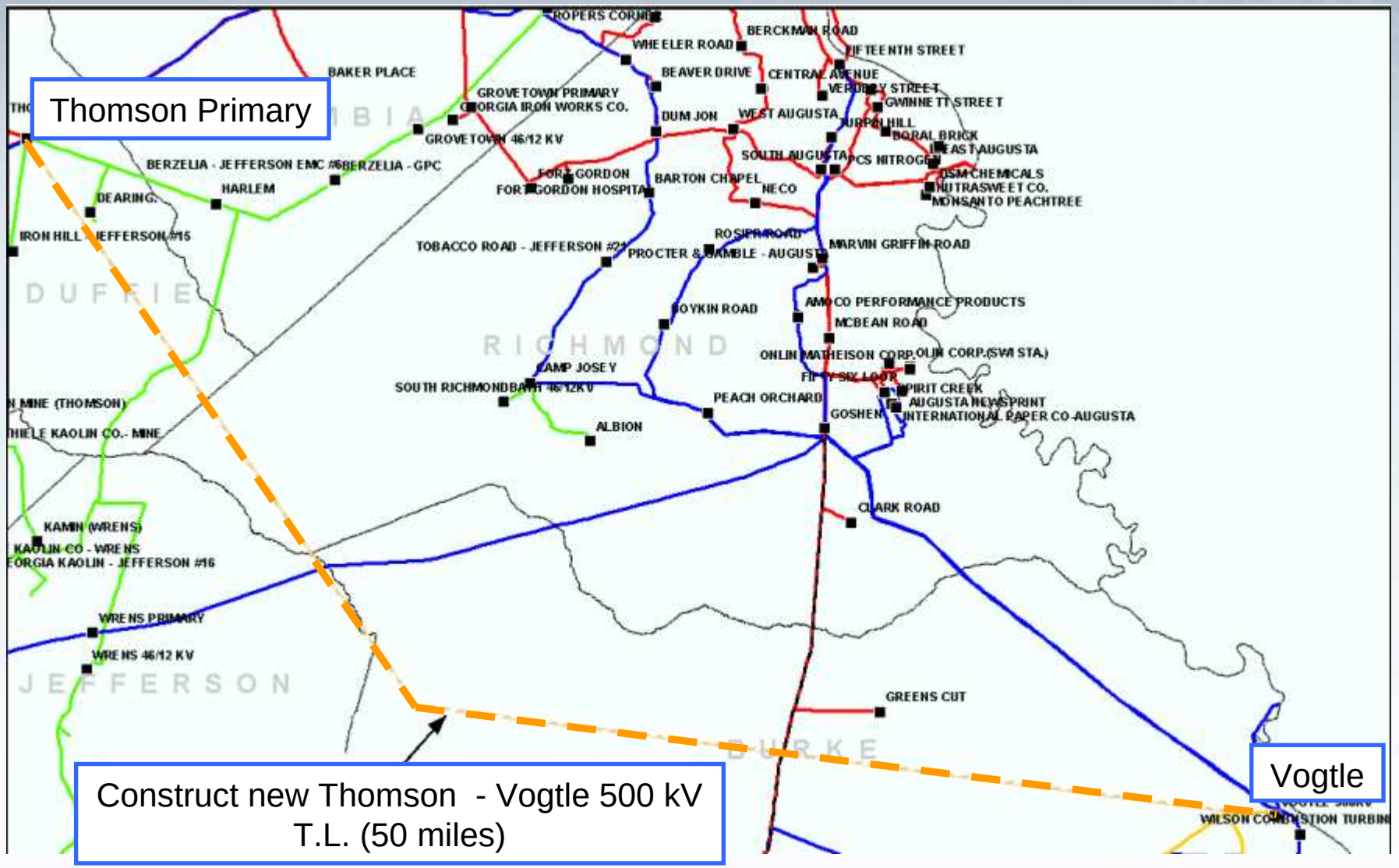
- Construct a 500 kV line from Plant Vogtle to the new Thomson Primary 500 / 230 kV substation.

- This project is to support the expansion of Plant Vogtle.

**No change in project timing.*

Thomson Primary – Vogtle 500 kV T.L.

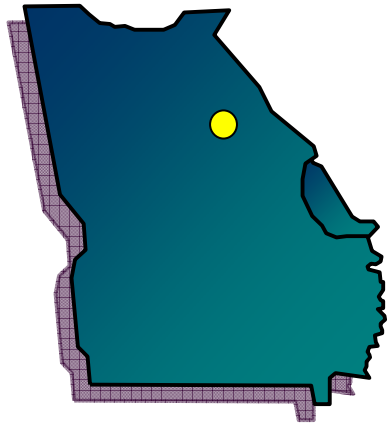
2016 ITS-8



Southeastern Region Transmission Planning

Expansion Item ITS-9

2017 ITS-9



Middle Fork – Thomson 500 kV Transmission Line

- Construct a new 500 kV Transmission Line from Middle Fork – Thomson (approximately 110 miles)
- Required to support generation expansion in the central Georgia area.

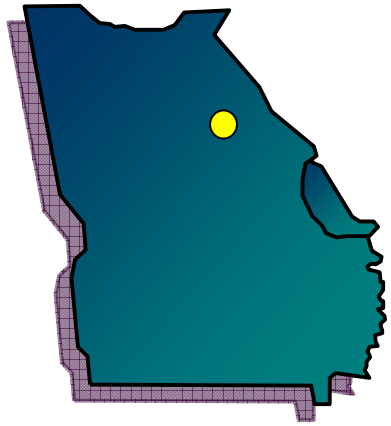
** Project timing to be re-evaluated in second five year analysis.*

Southeastern Region Transmission Planning

Expansion Item ITS-10

2017 ITS-10

Middle Fork 500 / 230 kV Project



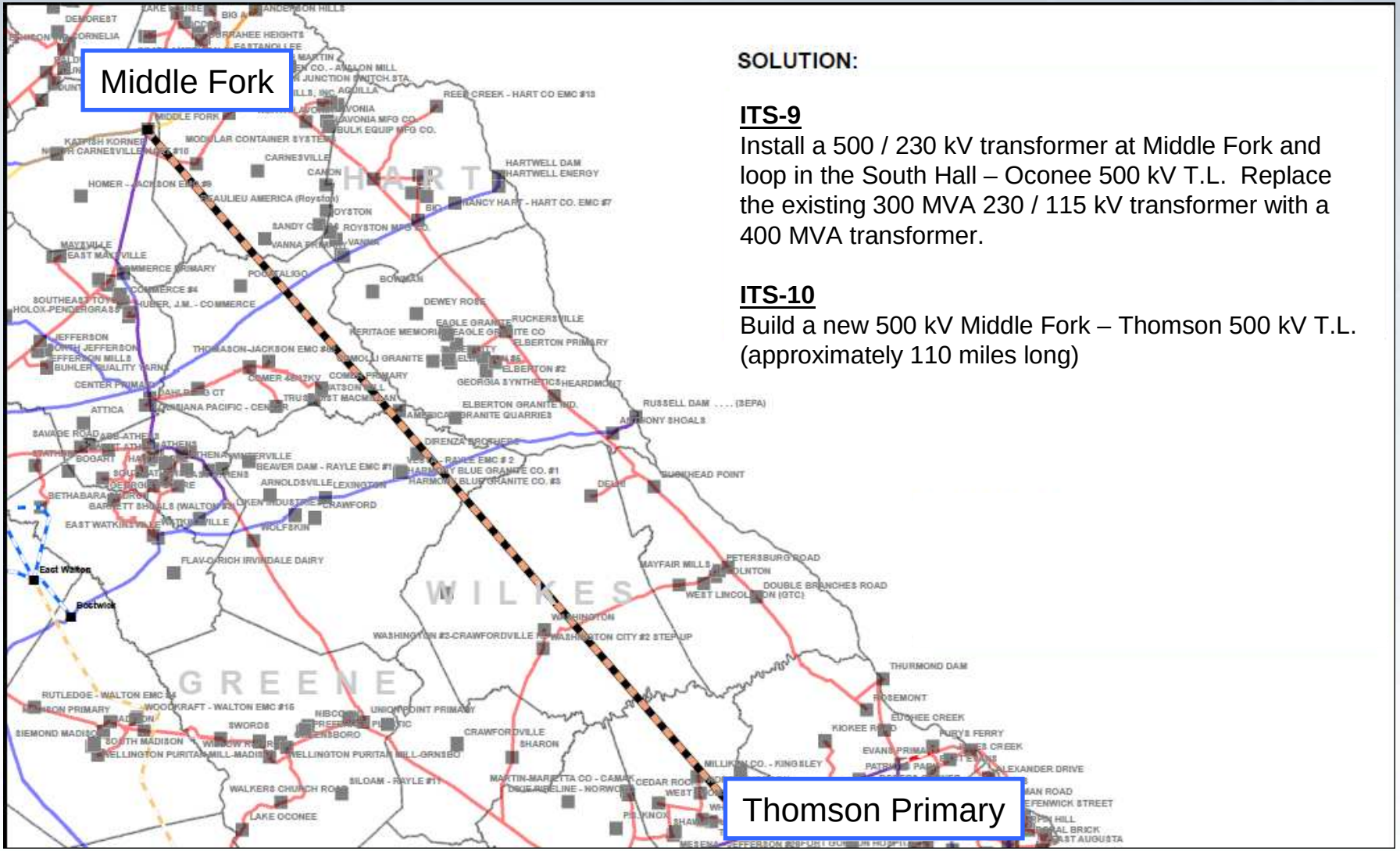
- Install a 500 / 230 kV transformer at Middle Fork and loop the South Hall – Oconee 500 kV T.L.

- Required to support generation expansion in the central Georgia area.

** Project timing to be re-evaluated in second five year analysis.*

Middle Fork 500 / 230 kV Project
Middle Fork – Thomson 500 kV T.L.

2017 ITS-9
2017 ITS-10



SOLUTION:

ITS-9

Install a 500 / 230 kV transformer at Middle Fork and loop in the South Hall – Oconee 500 kV T.L. Replace the existing 300 MVA 230 / 115 kV transformer with a 400 MVA transformer.

ITS-10

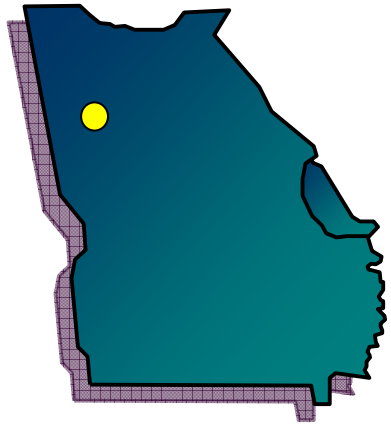
Build a new 500 kV Middle Fork – Thomson 500 kV T.L. (approximately 110 miles long)

Southeastern Region Transmission Planning

Expansion Item ITS-11

2017 ITS-11

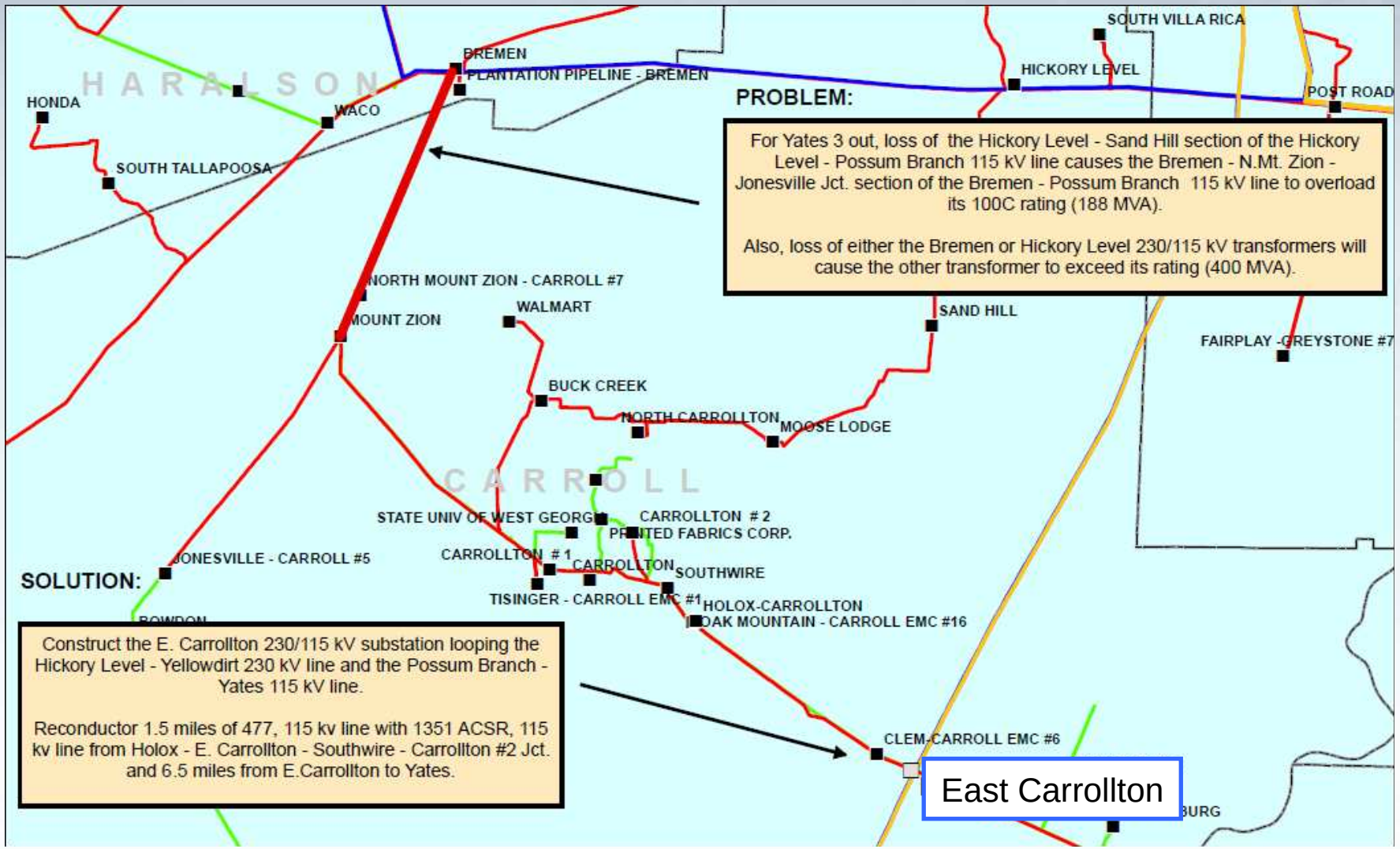
East Carrollton 230 / 115 kV Substation



- Construct the East Carrollton 230 / 115 kV substation looping the Hickory Level – Yellowdirt 230 kV T.L. and the Possum Branch – Yates 115 kV T.L..
- Reconductor 1.5 miles of 115 kV T.L. from Clem – Oak Mtn. – Holox – East Carrollton – Southwire – Carrollton #2 Junction
- With Yates unit #3 offline, the loss of Hickory Level – Sand Hill 115 kV T.L. causes Mt. Zion – Jonesville Junction 115 kV T.L. to overload. Additionally, the loss of either Bremen or Hickory Level 230 / 115 kV transformers will cause the other transformer to exceed its rating.

East Carrollton 230 / 115 kV Substation

2017 ITS-11

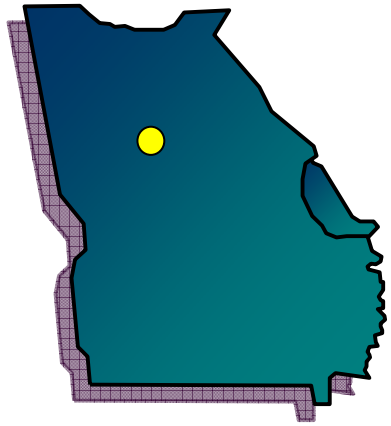


Southeastern Region Transmission Planning

Expansion Item ITS-12

2017 ITS-12

South Metro Phase-III Project

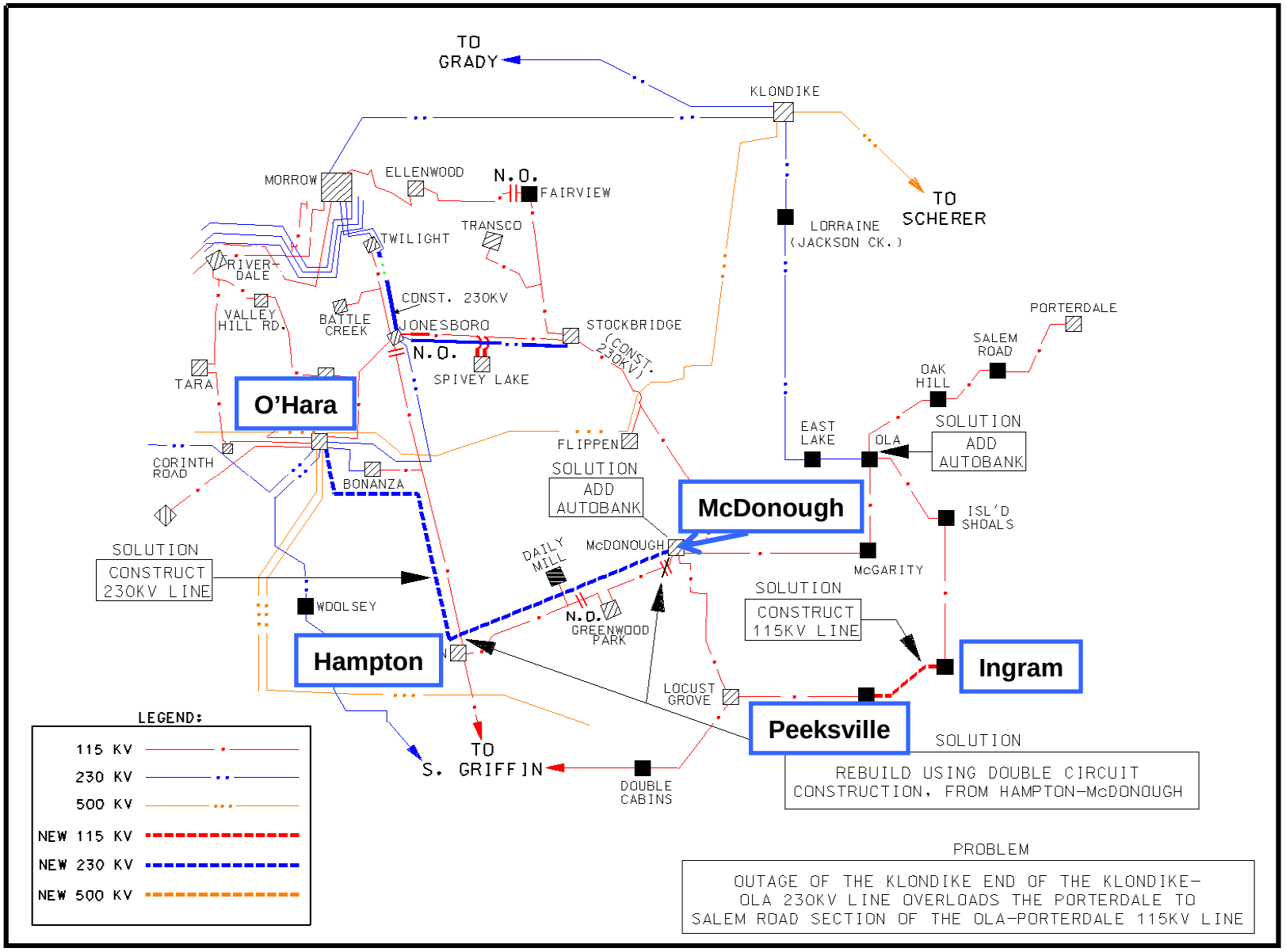


- Rebuild the existing O'Hara – Bonanza – Hampton – McDonough 115 kV T.L. with double circuit with ACSR 1351 at 230 kV specifications.
- Create a new 230 kV circuit from O'Hara to McDonough and add a 230 / 115 kV, 400 MVA transformer at McDonough
- Construct a 115 kV T.L. between the Peeksville and Ingram substations.
- Project alleviates multiple thermal overloads in the metro Atlanta area.

** Project timing to be re-evaluated in second five year analysis.*

South Metro Phase III Project

2017 ITS-12

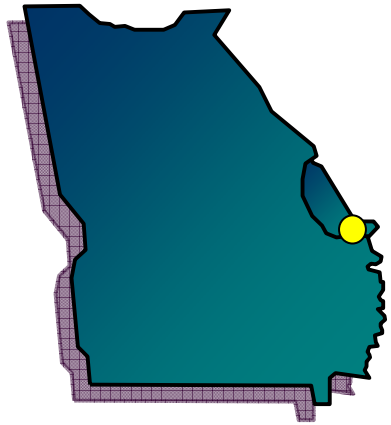


Southeastern Region Transmission Planning

Expansion Item ITS-13

2017 ITS-13

Dorchester 230 kV Project

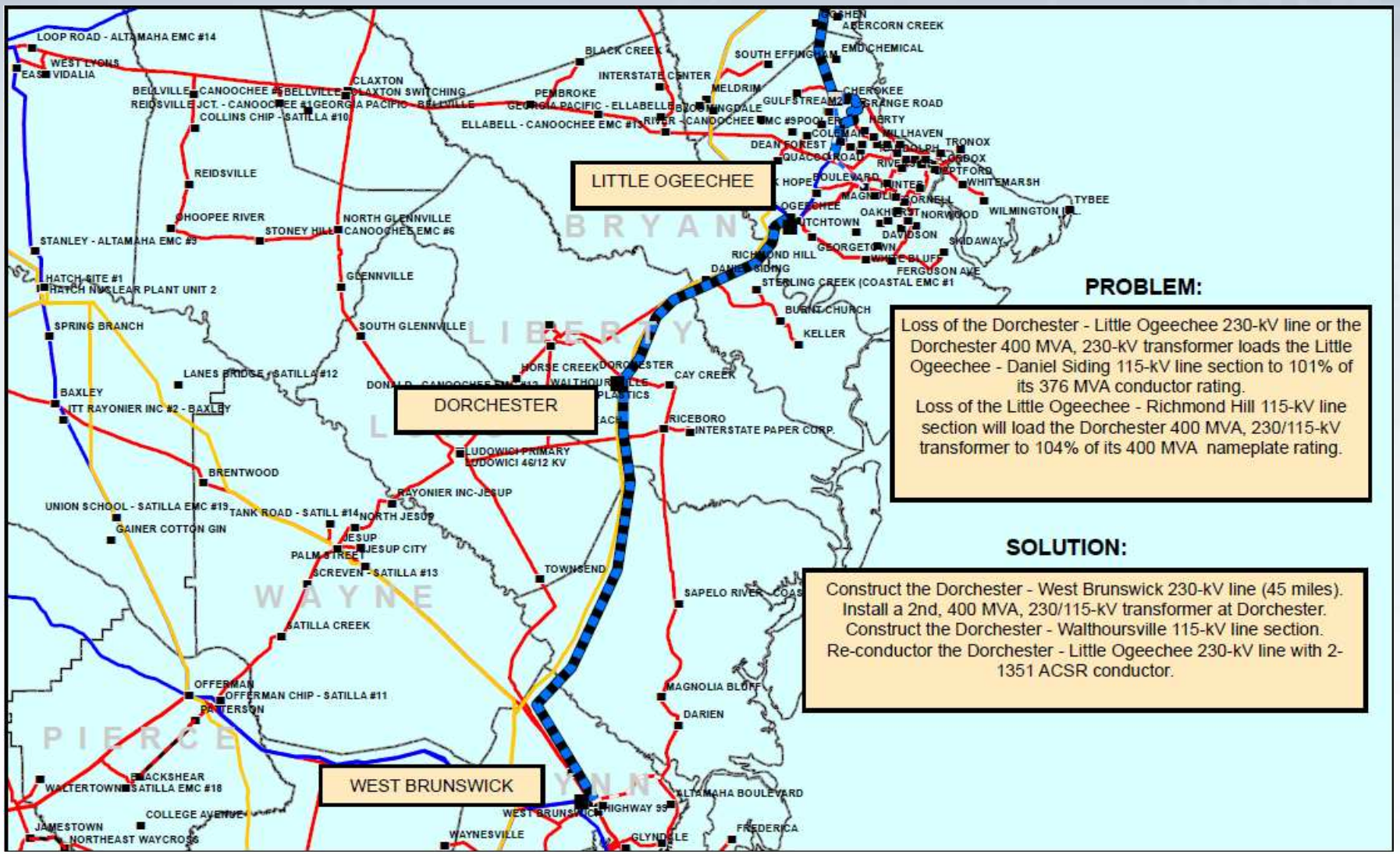


- Construct a 45 mile 230 kV T.L. from Dorchester to West Brunswick.
- Install a second 230 / 115 kV transformer and 230 kV capacitor bank at Dorchester.
- Reconductor Dorchester – Little Ogeechee 230 kV T.L.
- This project is to alleviate multiple thermal overloads for various contingencies in the Savannah Georgia area.

** Project timing to be re-evaluated in second five year analysis.*

Dorchester 230 kV Project

2017 ITS-13



PROBLEM:

Loss of the Dorchester - Little Ogeechee 230-kV line or the Dorchester 400 MVA, 230-kV transformer loads the Little Ogeechee - Daniel Siding 115-kV line section to 101% of its 376 MVA conductor rating.
Loss of the Little Ogeechee - Richmond Hill 115-kV line section will load the Dorchester 400 MVA, 230/115-kV transformer to 104% of its 400 MVA nameplate rating.

SOLUTION:

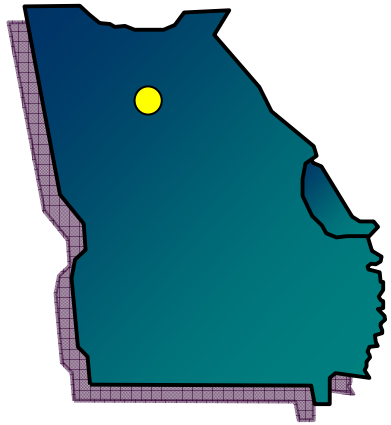
Construct the Dorchester - West Brunswick 230-kV line (45 miles).
Install a 2nd, 400 MVA, 230/115-kV transformer at Dorchester.
Construct the Dorchester - Walthoursville 115-kV line section.
Re-conductor the Dorchester - Little Ogeechee 230-kV line with 2-1351 ACSR conductor.

Southeastern Region Transmission Planning

Expansion Item ITS-14

2017 ITS-14

Hopewell – McGrau Ford 2nd 230 kV Line



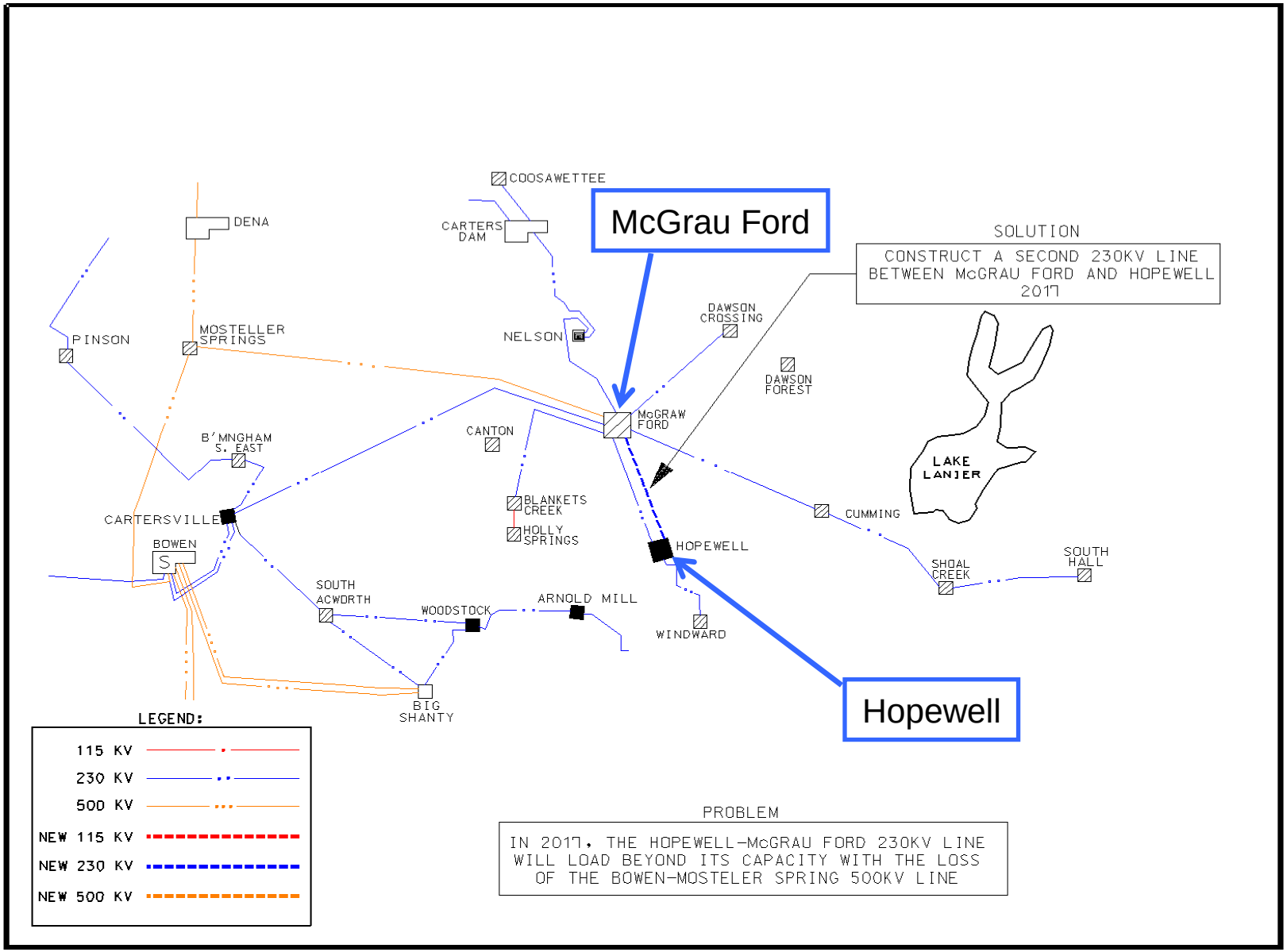
- Construct a second 230 kV Transmission Line between McGrau Ford and Hopewell.

- This project alleviates thermal overloads on the Norcross – Ocee 230 kV T.L. and provides additional voltage support for the North Georgia area.

** Project timing to be re-evaluated in second five year analysis.*

Hopewell – McGrau Ford 2nd 230 kV

2017 ITS-14

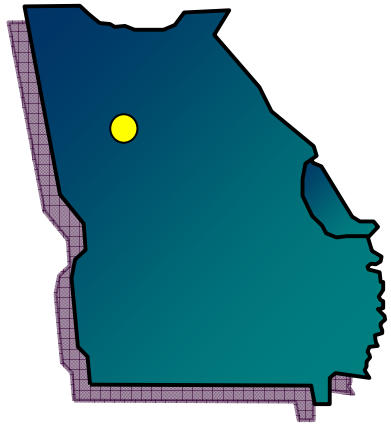


Southeastern Region Transmission Planning

Expansion Item ITS-15

2017 ITS-15

O'Hara 500 / 230 kV Transformer #2 Addition

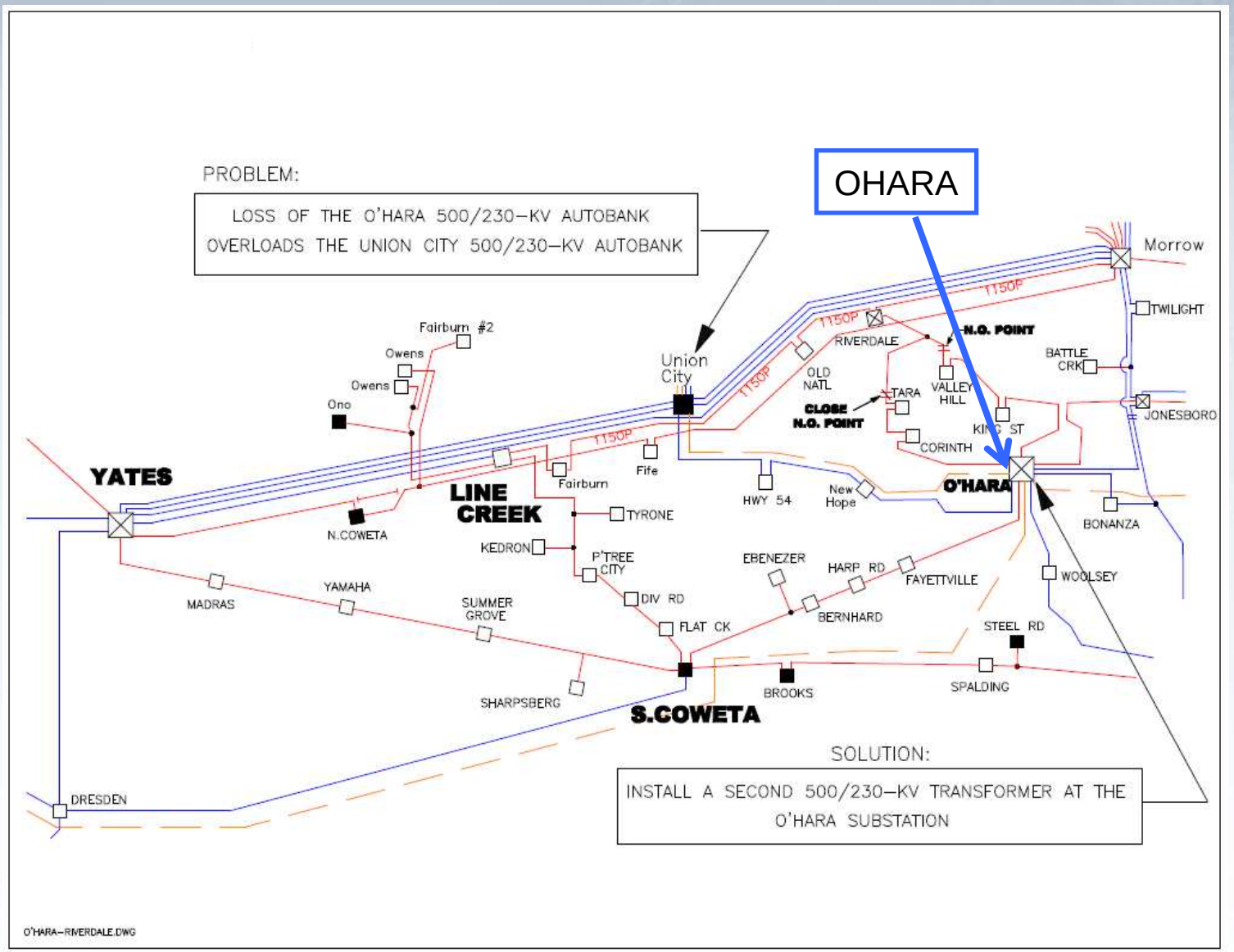


- Install a second 500 / 230 kV transformer at the O'Hara substation.
- The loss of the 500 / 230 kV transformer at O'Hara causes Union City's 500 / 230 kV transformer to overload.

** Project timing to be re-evaluated in second five year analysis.*

O'Hara 500 /230 kV Transformer #2

2017 ITS-15

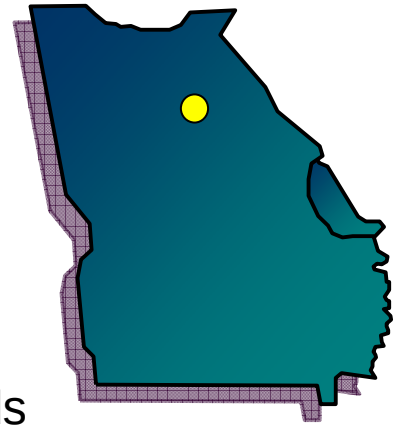


Southeastern Region Transmission Planning

Expansion Item ITS-16

2017 ITS-16

South Hall – Suwanee 230 kV Transmission Line

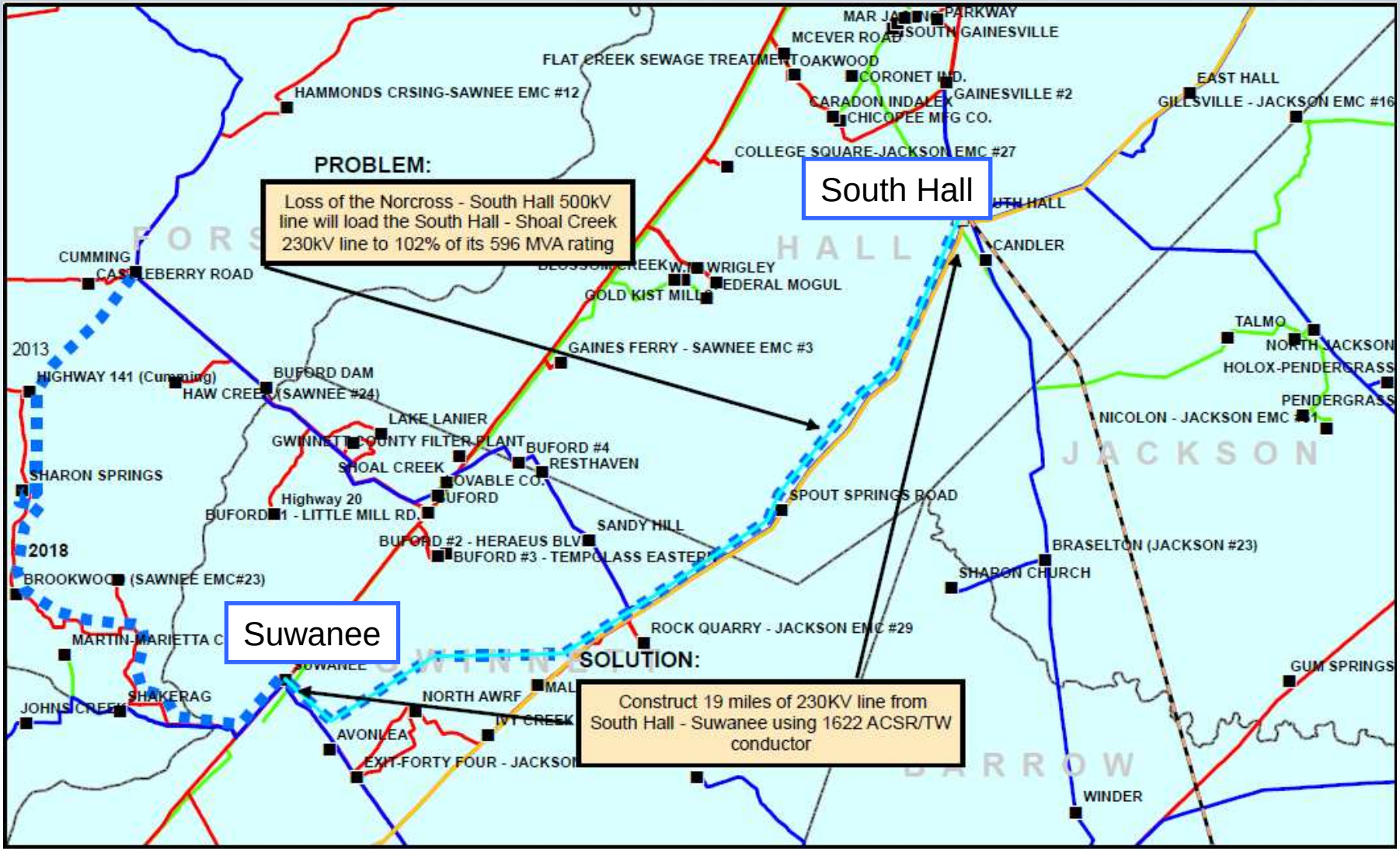


- Construct 19 miles of 230 kV T.L. from South Hall to Suwanee.
- The loss of Norcross – South Hall 500 kV T.L. overloads the South Hall – Shoal Creek 230 kV T.L.

** Project timing to be re-evaluated in second five year analysis.*

South Hall – Suwanee 230 kV T.L.

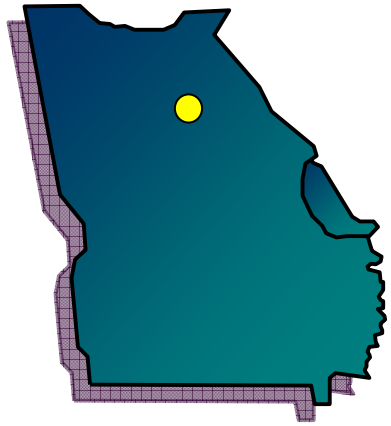
2017 ITS-16



Southeastern Region Transmission Planning

Expansion Item ITS-17

2018 ITS-17



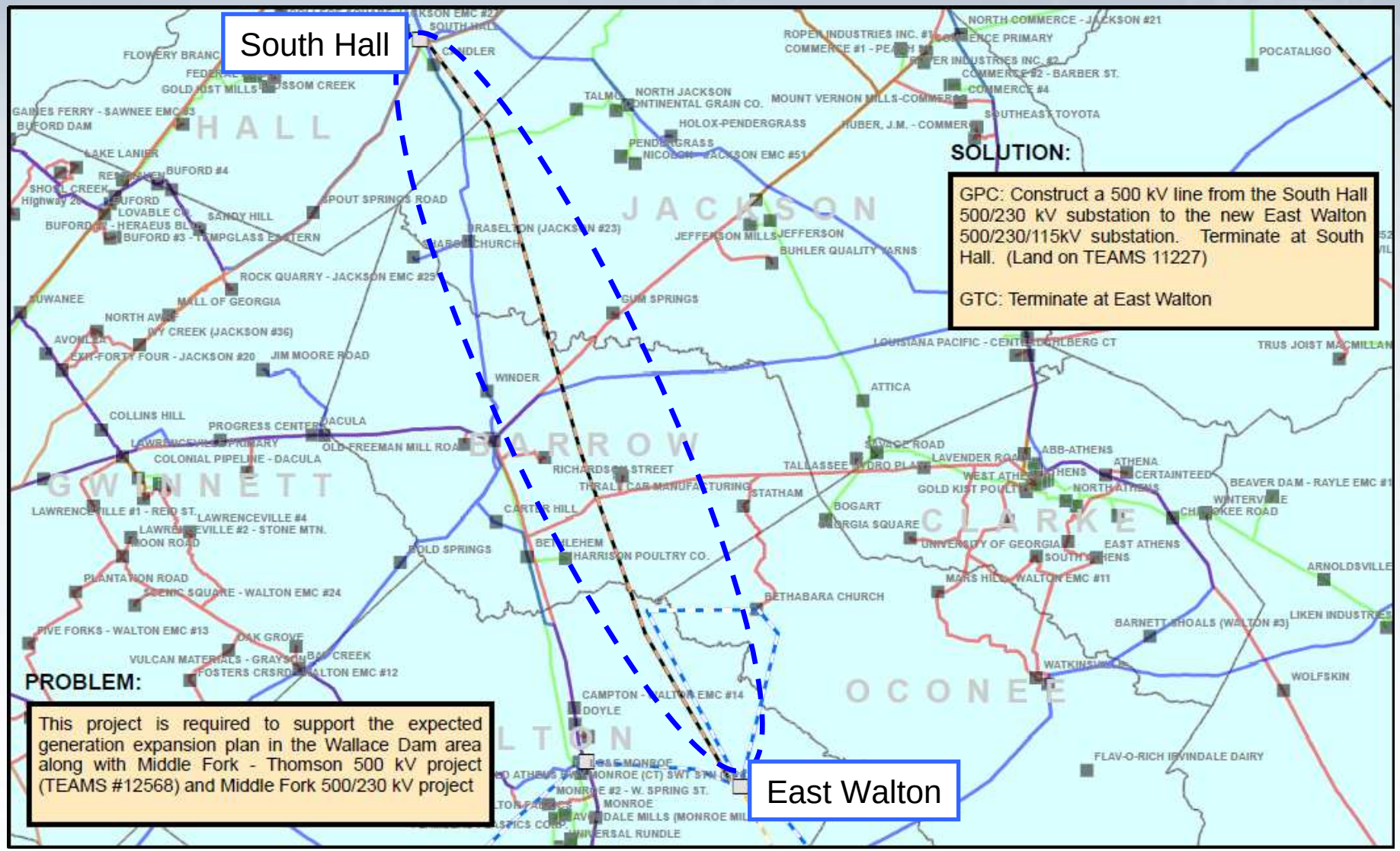
East Walton – South Hall 500 kV Transmission Line

- Construct a 500 kV T.L. from South Hall to East Walton.
- Required to support generation expansion in the central Georgia area.

** Project timing to be re-evaluated in second five year analysis.*

East Walton – South Hall 500 kV T.L.

2018 ITS-17

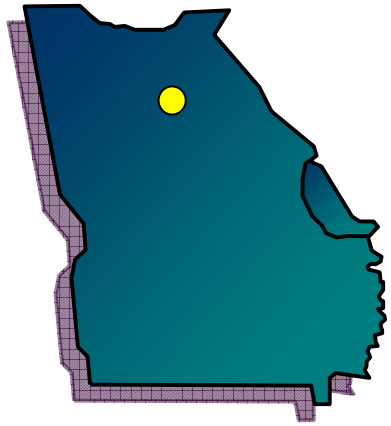


Southeastern Region Transmission Planning

Expansion Item ITS-18

2018 ITS-18

Sharon Springs – Suwanee 230 kV Transmission Line



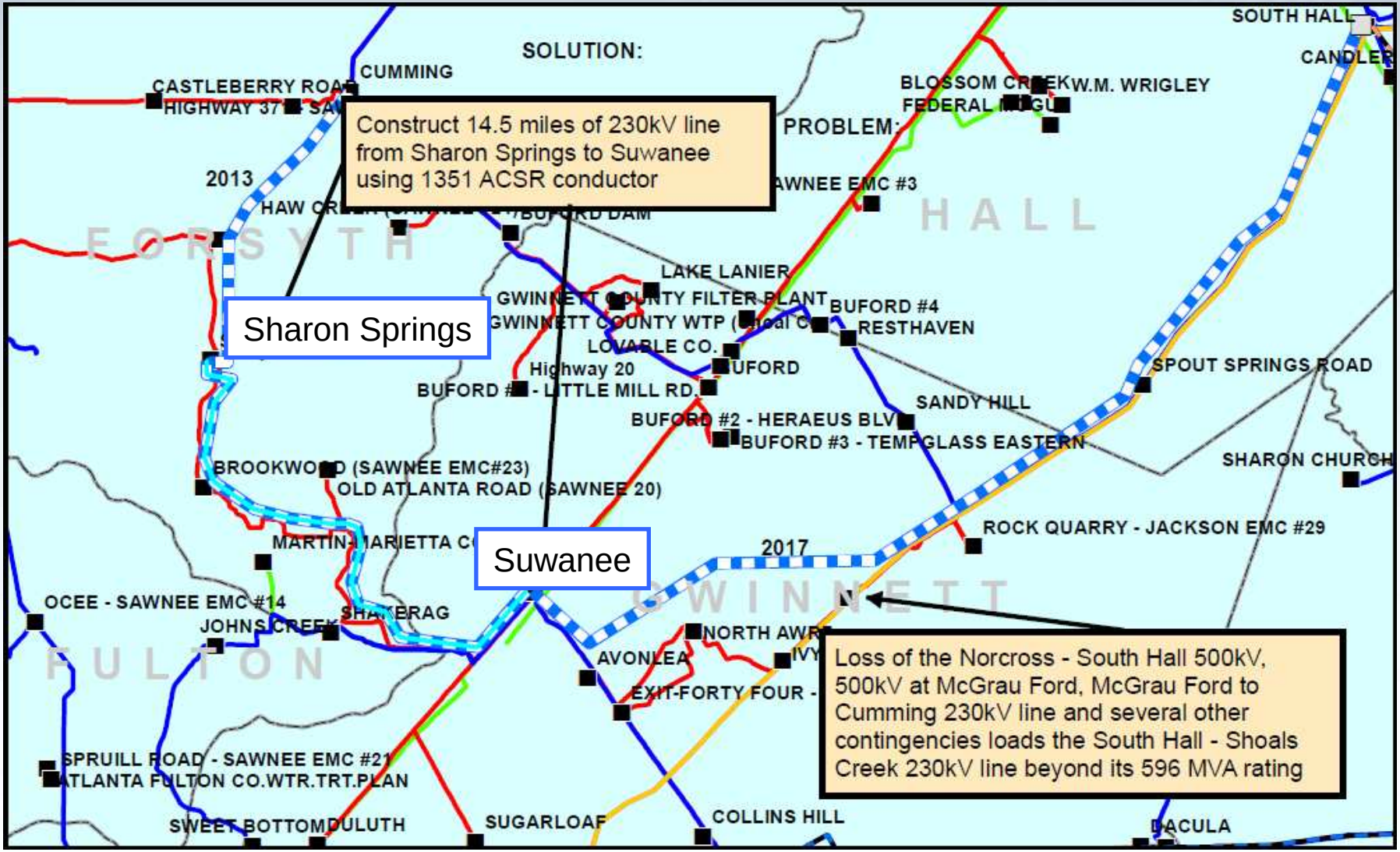
- Construct 14.5 miles of 230 kV T.L. from Sharon Springs to Suwanee.

- For the loss of the Norcross – South Hall 500 kV T.L., the South Hall – Spout Springs 230 kV T.L. becomes overloaded.

** Project timing to be re-evaluated in second five year analysis.*

Sharon Springs – Suwanee 230 kV T.L.

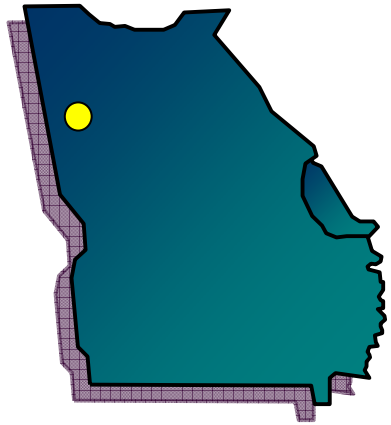
2018 ITS-18



Southeastern Region Transmission Planning

Expansion Item ITS-19

2018 ITS-19



South Coweta – Yates 115 kV Transmission Line

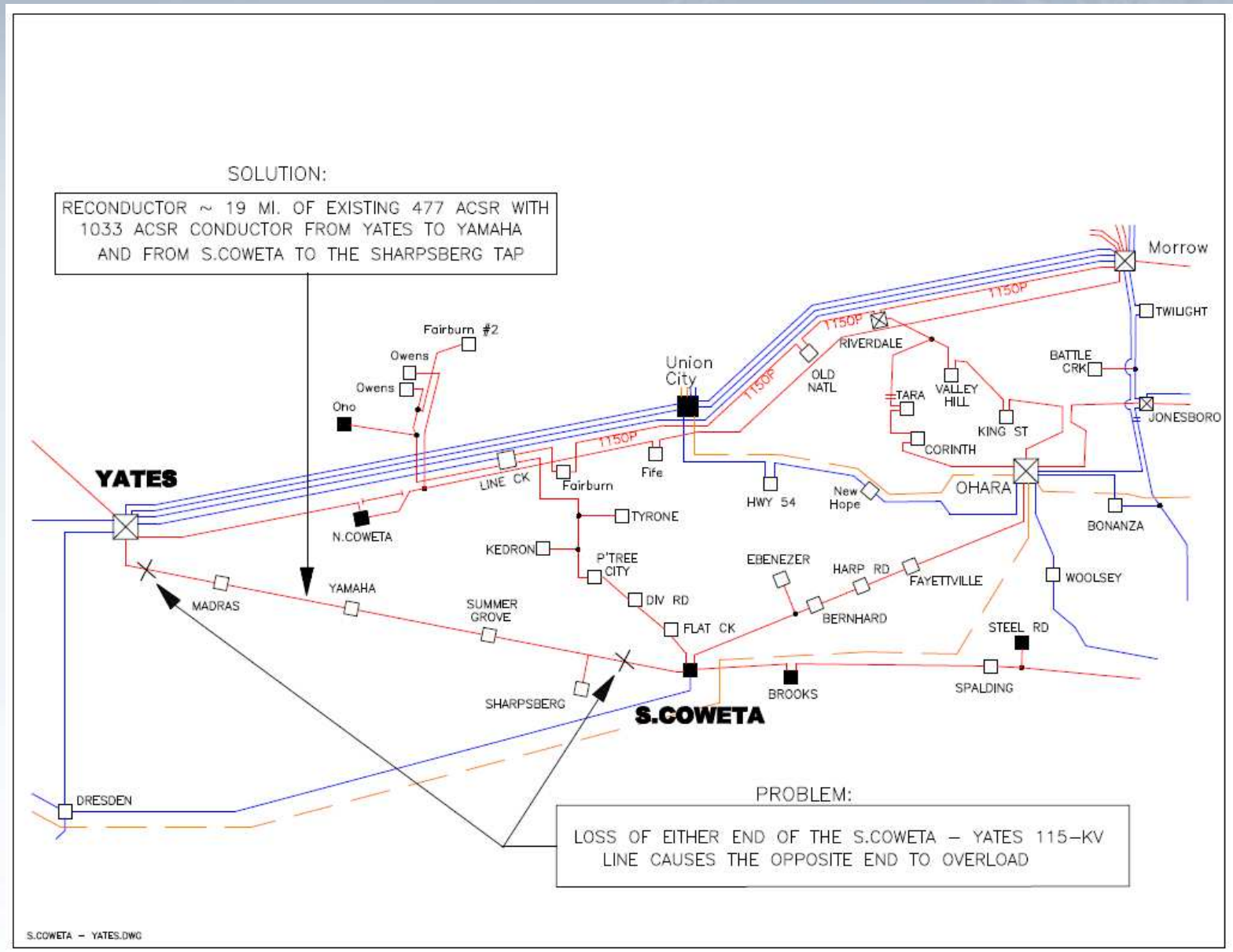
- Reconductor approximately 19 miles consisting of multiple sections of the South Coweta – Yates 115 kV T.L.

- For the loss of either end of the South Coweta – Yates 115 kV T.L., with Yates unit #3 offline, sections of the South Coweta – Yates 115 kV T.L. become overloaded.

** Project timing to be re-evaluated in second five year analysis.*

South Coweta – Yates 115 kV T.L.

2018 ITS-19

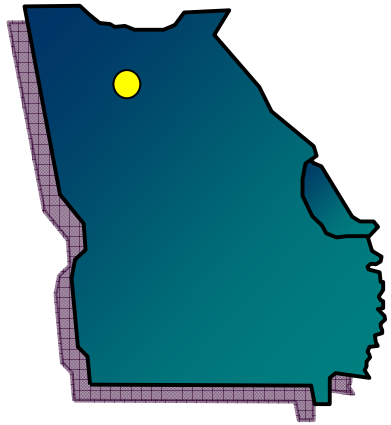


Southeastern Region Transmission Planning

Expansion Item ITS-20

2019 ITS-20

Blankets Creek – Holly Springs 115 kV Transmission Line



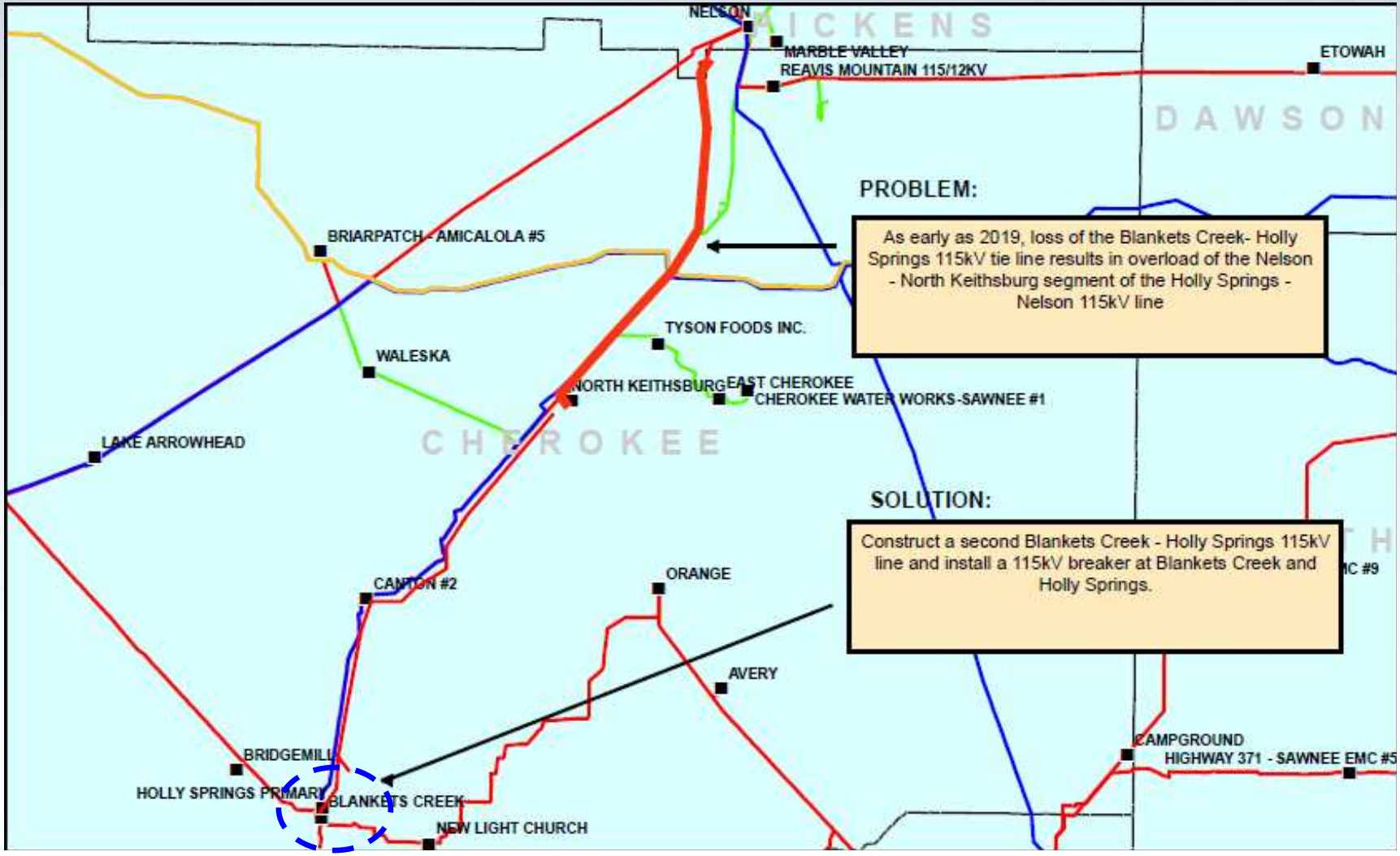
- Construct a second Blankets Creek – Holly Springs 115 kV T.L.

- For the loss of the Blankets Creek – Holly Springs 115 kV T.L., sections of the Holly Springs – Nelson 115 kV T.L. become overloaded.

** Project timing to be re-evaluated in second five year analysis.*

Blankets Creek – Holly Springs 115 kV

2019 ITS-20

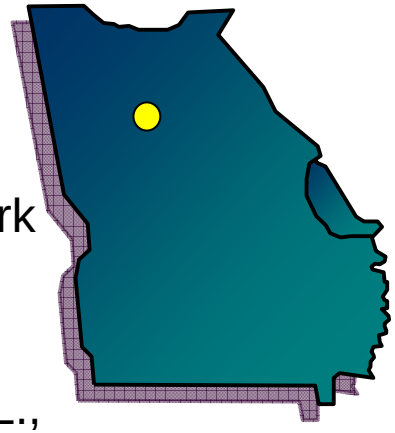


Southeastern Region Transmission Planning

Expansion Item ITS-21

2019 ITS-21

Commerce Primary – Middle Fork 115 kV Transmission Line



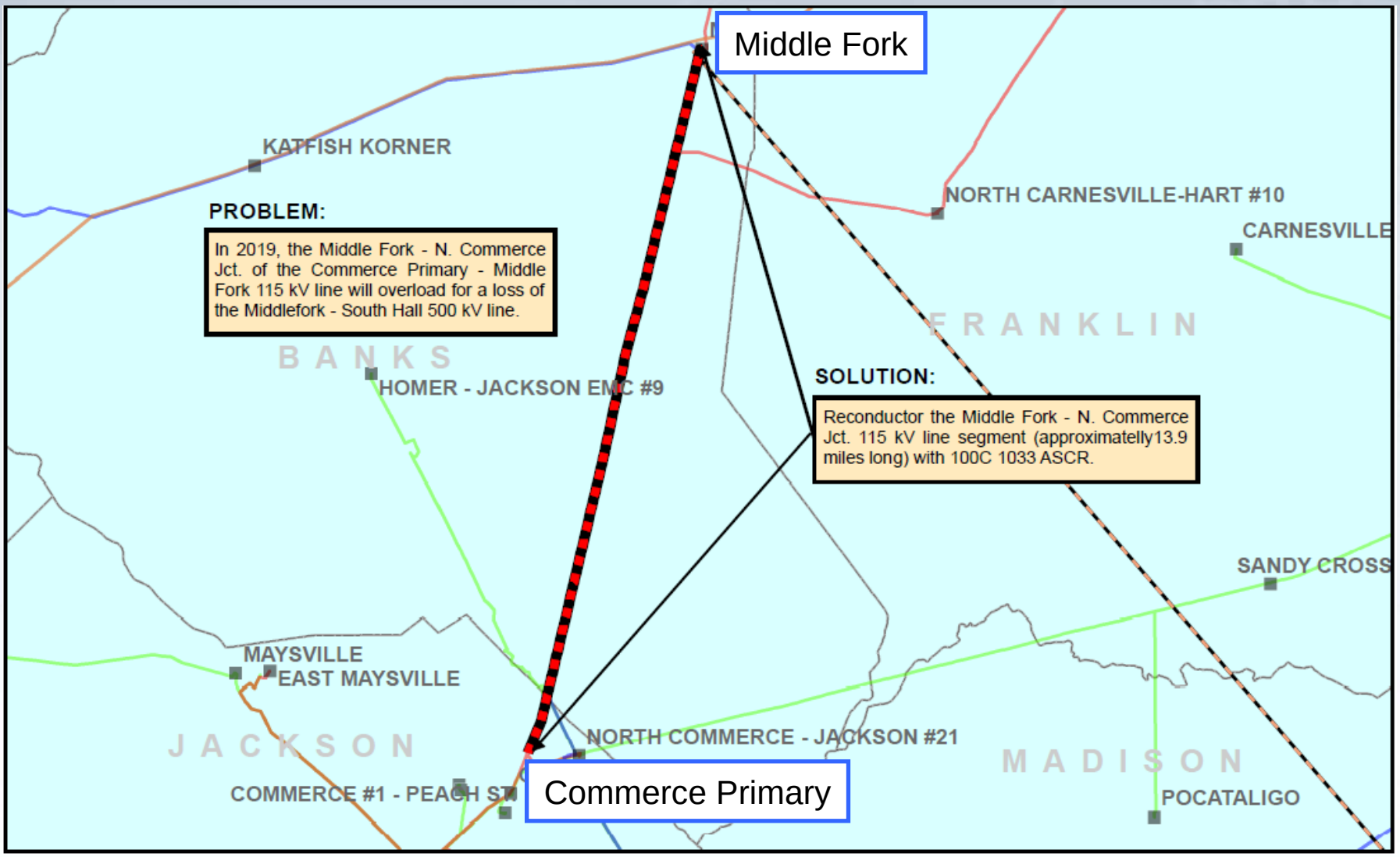
- Reconductor approximately 13.9 miles from Middle Fork to North Commerce Junction.

- For the loss of the Middle Fork – South Hall 500 kV T.L., sections of the Commerce Primary – Middle Fork 115 kV Transmission Line will become overloaded.

** Project timing to be re-evaluated in second five year analysis.*

Commerce Primary – Middle Fork 115 kV

2019 ITS-21



Questions?