

Southeast Arizona Transmission Study

Saturation Case Strategies

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Saturation Strategy A: 2 EHV NW-SE & NW-S Paths Through Tucson

STRATEGY A

Eastern 345kV Path:

- Tortolita – North Loop 345kV
- North Loop – East Loop 345kV
- East Loop – Vail 345kV

Western 345kV Path:

- Tortolita – Marana 345kV
- Marana – SS30 345kV
- SS30 – South Loop 345kV

EXTERNAL SYSTEM ASSUMPTIONS

Possible Joint Projects:

- Tortolita – Winchester 500kV
- Tortolita – Marana 345kV
- Marana – Three Points 345kV
- Three Points – Bicknell 230kV
 - 345kV Option?
- Bicknell – Vail 345kV (Existing)
 - South Loop-In not in service
- 2nd Winchester – Vail 345kV

Possible TEP Projects:

- 2nd Vail – South 345kV

Committed TEP Projects:

- Pinal West 500/345kV
- Pinal South – Tortolita 500kV



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Saturation Strategy B: 1 EHV Path Through Tucson

STRATEGY B

Western 345kV Path Only:

- Tortolita – Marana 345kV
- Marana – DMP 345kV
- DMP – SS30 345kV
- SS30 – South Loop 345kV

EXTERNAL SYSTEM ASSUMPTIONS

Possible Joint Projects:

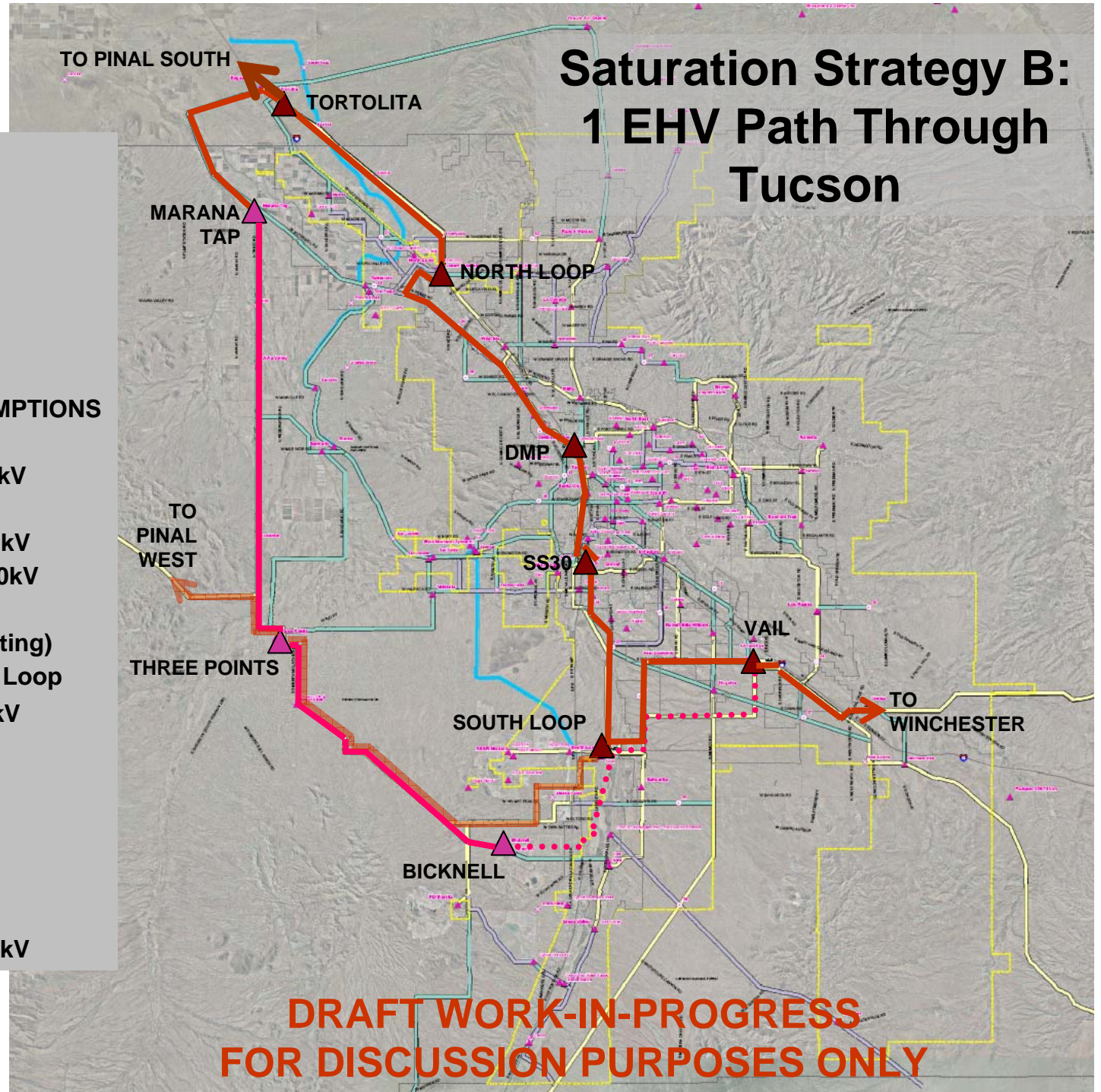
- Tortolita – Winchester 500kV
- Tortolita – Marana 345kV
- Marana – Three Points 345kV
- Three Points – Bicknell 230kV
 - 345kV Option?
- Bicknell – Vail 345kV (Existing)
 - No Loop-In @ South Loop
- 2nd Winchester – Vail 345kV

Possible TEP Projects:

- 2nd Vail – South 345kV

Committed TEP Projects:

- Pinal West 500/345kV
- Pinal South – Tortolita 500kV



Saturation Strategy C: EHV Reach-In to Tucson

STRATEGY C

Reach-In to NL, EL & SS30:

- Tortolita – North Loop 345kV
- Tortolita – Marana 345kV
- Marana – North Loop 345kV
- South Loop – SS30 345kV
- Vail – South Loop 345kV
- Vail – East Loop 345kV

EXTERNAL SYSTEM ASSUMPTIONS

Possible Joint Projects:

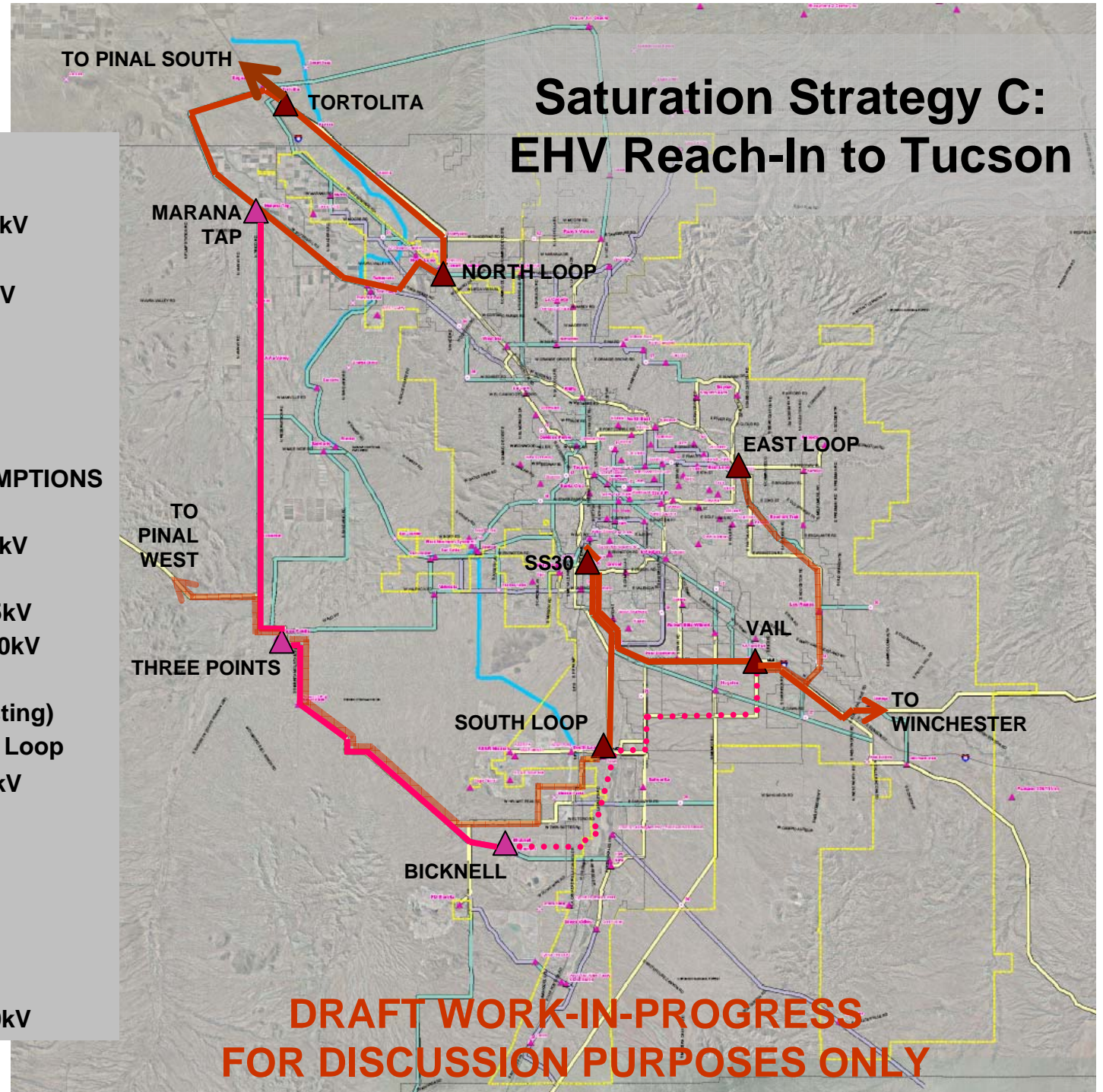
- Tortolita – Winchester 500kV
- Tortolita – Marana 345kV
- Marana – Three Points 345kV
- Three Points – Bicknell 230kV
 - 345kV Option?
- Bicknell – Vail 345kV (Existing)
 - No Loop-In @ South Loop
- 2nd Winchester – Vail 345kV

Possible TEP Projects:

- 2nd Vail – South 345kV

Committed TEP Projects:

- Pinal West 500/345kV
- Pinal South – Tortolita 500kV



Saturation Strategy D: EHV East-West Path Through Tucson

STRATEGY D

East – West Path:

- Tortolita – North Loop 345kV
- Tortolita – Marana 345kV
- Marana – North Loop 345kV
- Vail – SS30 345kV
- Three Points – SS30 345kV
- Vail – East Loop 345kV

EXTERNAL SYSTEM ASSUMPTIONS

Possible Joint Projects:

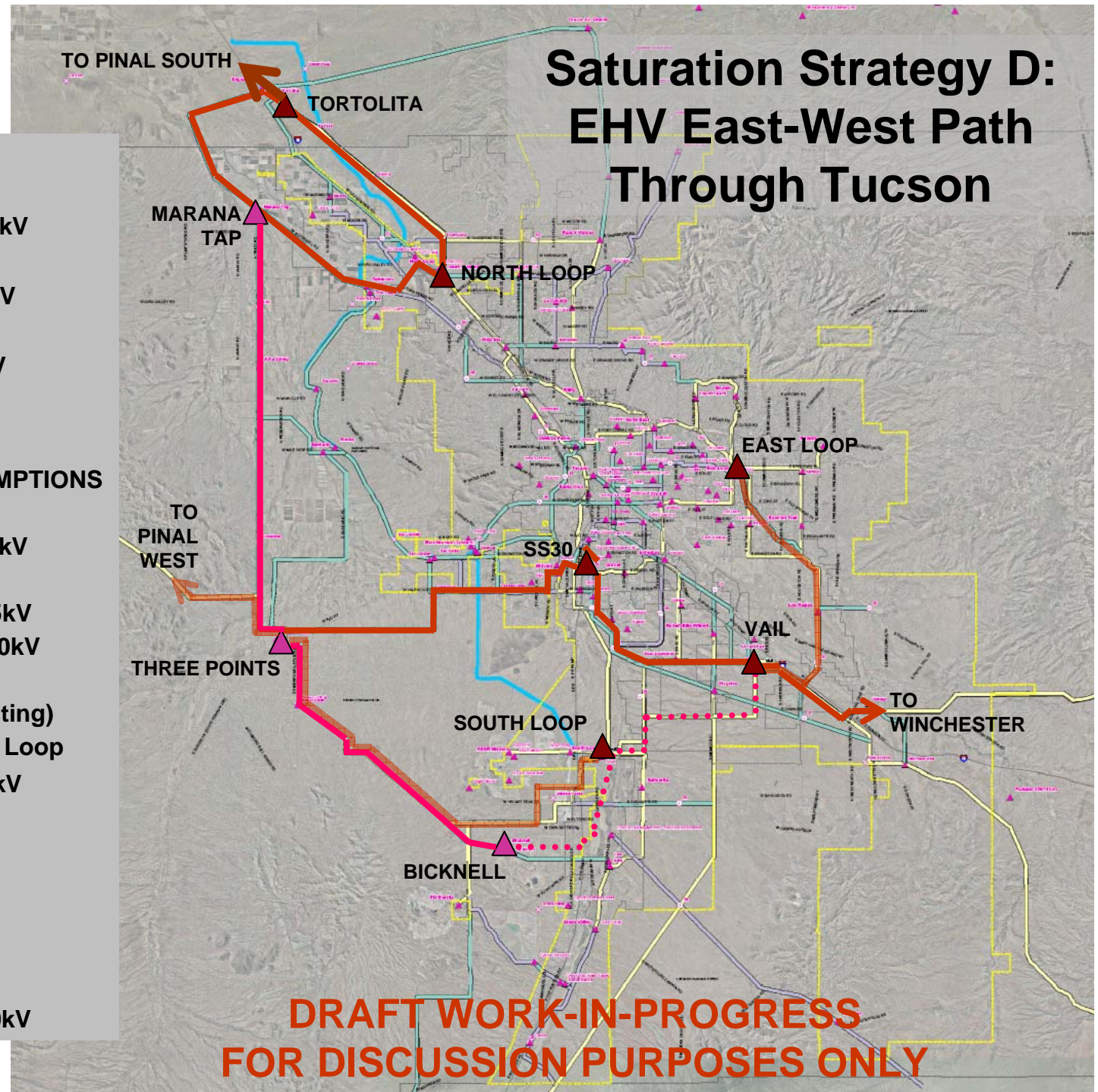
- Tortolita – Winchester 500kV
- Tortolita – Marana 345kV
- Marana – Three Points 345kV
- Three Points – Bicknell 230kV
 - 345kV Option?
- Bicknell – Vail 345kV (Existing)
 - No Loop-In @ South Loop
- 2nd Winchester – Vail 345kV

Possible TEP Projects:

- 2nd Vail – South 345kV

Committed TEP Projects:

- Pinal West 500/345kV
- Pinal South – Tortolita 500kV



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Saturation Strategy E: Existing EHV Delivery Points into Tucson

STRATEGY E

- Tortolita 500/138kV
- South Loop 345/138kV
- Vail 345/138kV

EXTERNAL SYSTEM ASSUMPTIONS

Possible Joint Projects:

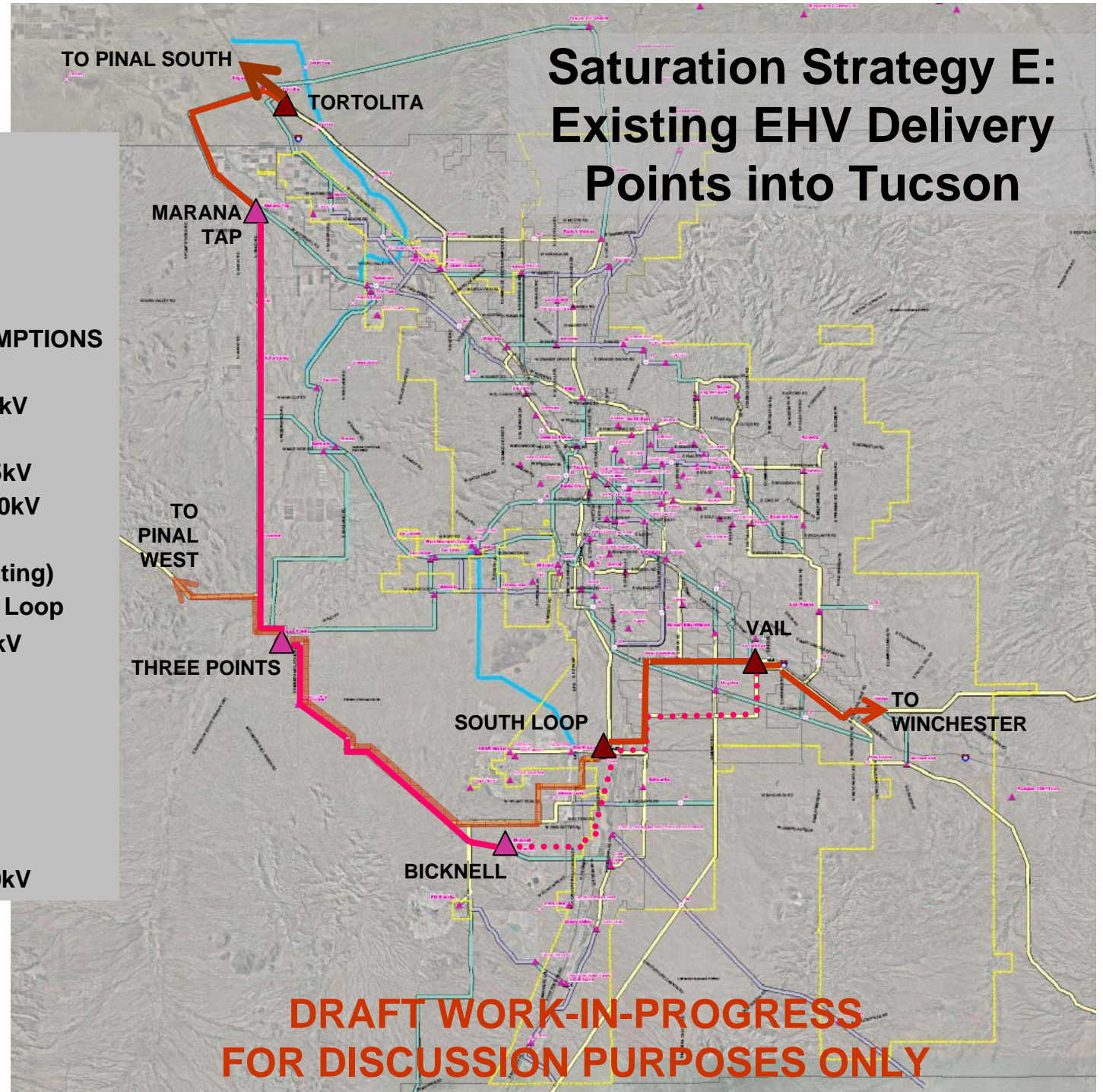
- Tortolita – Winchester 500kV
- Tortolita – Marana 345kV
- Marana – Three Points 345kV
- Three Points – Bicknell 230kV
 - 345kV Option?
- Bicknell – Vail 345kV (Existing)
 - No Loop-In @ South Loop
- 2nd Winchester – Vail 345kV

Possible TEP Projects:

- 2nd Vail – South 345kV

Committed TEP Projects:

- Pinal West 500/345kV
- Pinal South – Tortolita 500kV



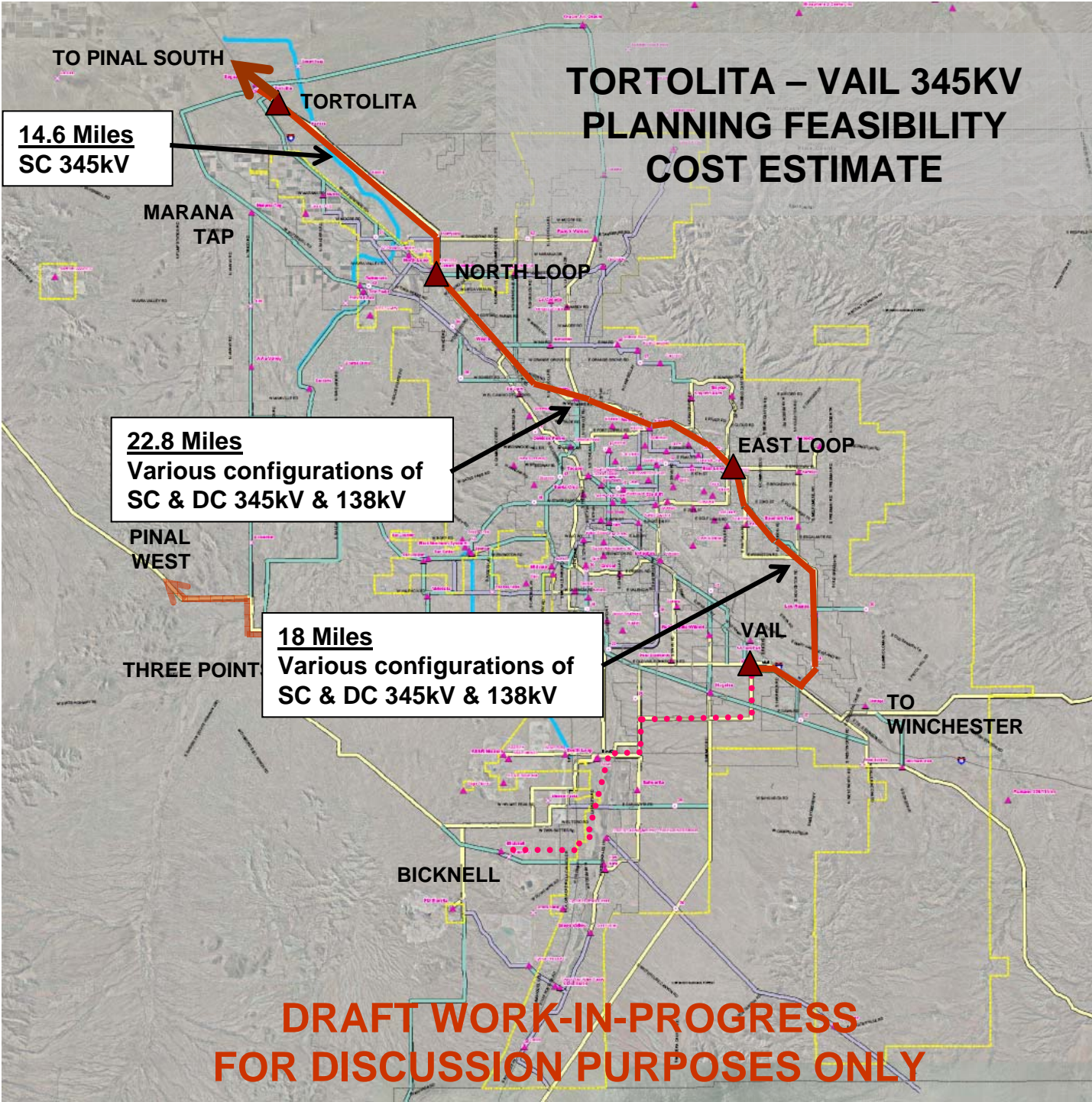
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TORTOLITA – VAIL 345KV PLANNING FEASIBILITY COST ESTIMATE

14.6 Miles
SC 345kV

22.8 Miles
Various configurations of
SC & DC 345kV & 138kV

18 Miles
Various configurations of
SC & DC 345kV & 138kV



**DRAFT WORK-IN-PROGRESS
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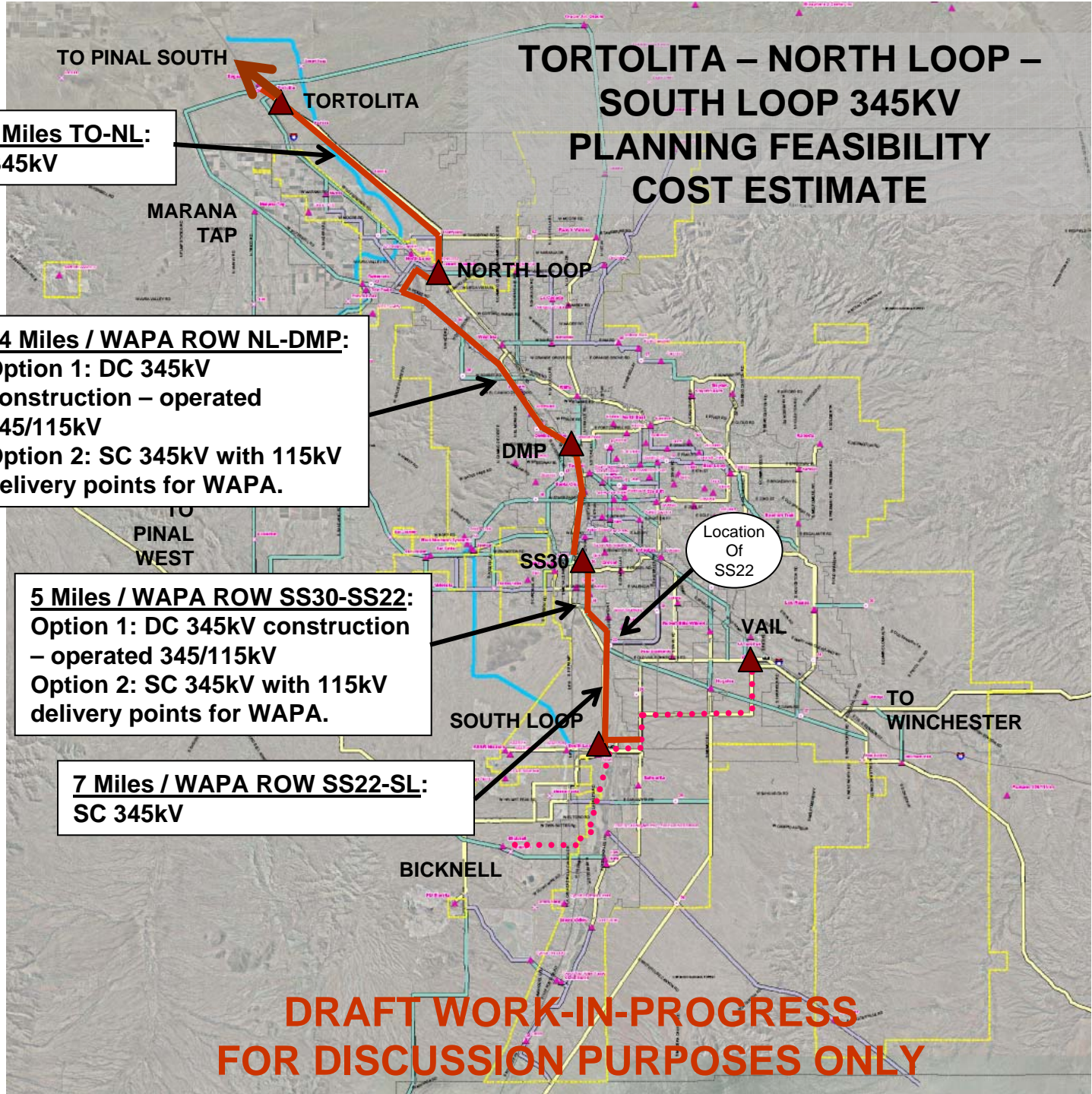
TORTOLITA – NORTH LOOP – SOUTH LOOP 345KV PLANNING FEASIBILITY COST ESTIMATE

14.6 Miles TO-NL:
SC 345kV

24 Miles / WAPA ROW NL-DMP:
Option 1: DC 345kV
construction – operated
345/115kV
Option 2: SC 345kV with 115kV
delivery points for WAPA.

5 Miles / WAPA ROW SS30-SS22:
Option 1: DC 345kV construction
– operated 345/115kV
Option 2: SC 345kV with 115kV
delivery points for WAPA.

7 Miles / WAPA ROW SS22-SL:
SC 345kV



**DRAFT WORK-IN-PROGRESS
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TORTOLITA – NORTH LOOP, SS30-Vail & 3 Points & Vail East Loop 345KV PLANNING FEASIBILITY COST ESTIMATE

14.6 Miles TO-NL:
SC 345kV

28.5 Miles TO-MA-NL:
Option 1: DC 345kV construction –
operated 345/115kV
Option 2: SC 345kV
with 115kV delivery
points for WAPA.

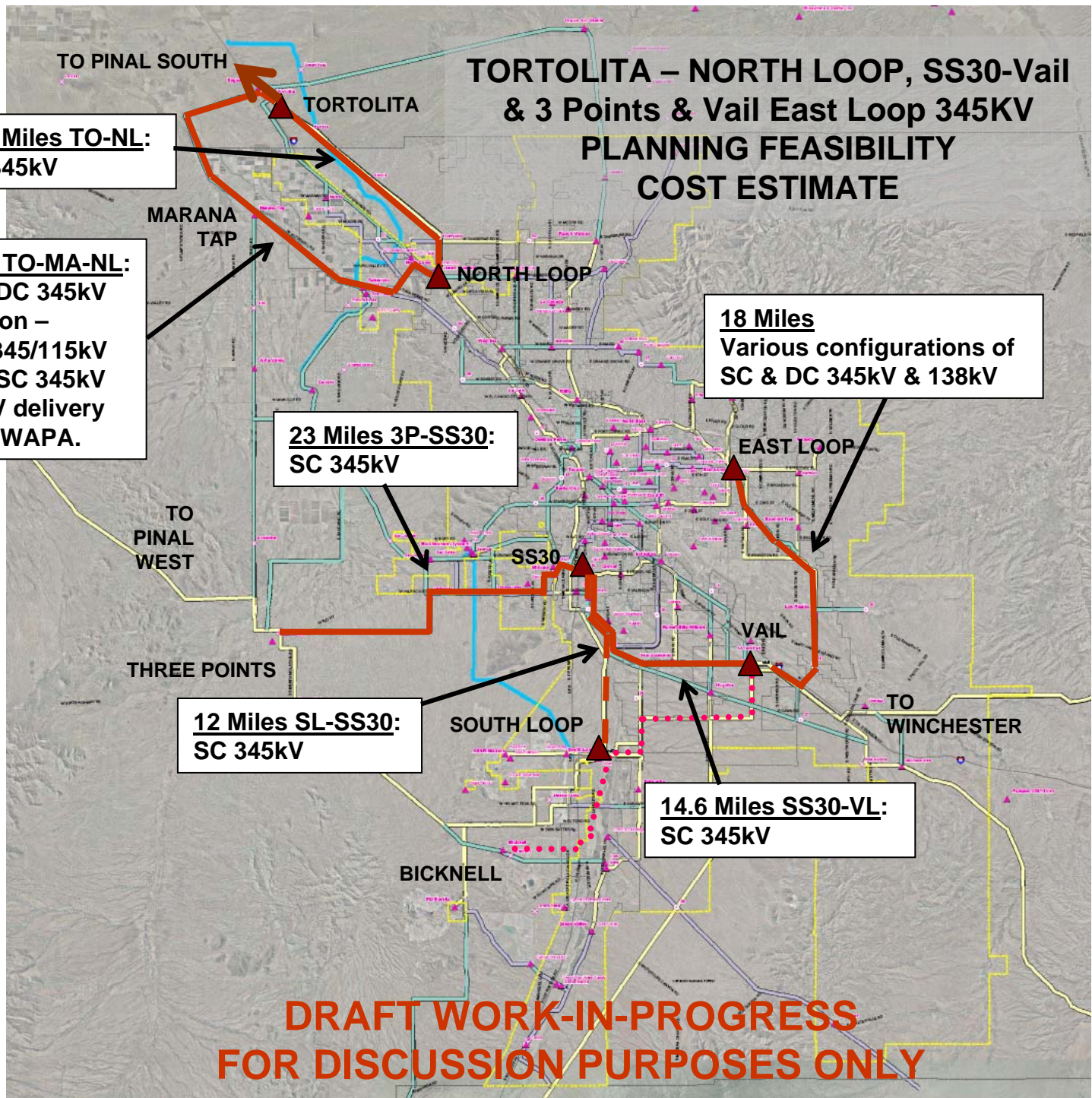
23 Miles 3P-SS30:
SC 345kV

18 Miles
Various configurations of
SC & DC 345kV & 138kV

12 Miles SL-SS30:
SC 345kV

14.6 Miles SS30-VL:
SC 345kV

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TO PINAL SOUTH

TORTOLITA

PLANNING FEASIBILITY COST ESTIMATES

EHV 345kV

Marana Tap - 3 Points - Bicknell

EHV 500kV

Pinal West - Three Points - South Loop

Winchester - Vail - South Loop

Winchester - Saguaro (or Pinal South)

MARANA TAP

**26 Miles MT-3P:
SC 345kV**

**15 Miles VL-SO:
SC 345kV or 500kV**

**41 Miles WN-VL:
SC 345kV or 500kV**

**23 Miles SO-3P:
SC 345kV or 500kV**

**87 Miles PW-3P:
SC 345kV or 500kV**

TO PINAL WEST

THREE POINTS

VAIL

TO WINCHESTER

SOUTH LOOP

**22 Miles 3P-BN:
SC 345kV**

BICKNELL

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