

Yuma 230 kV Ring Circuit

Conceptual Projects in the Yuma Area

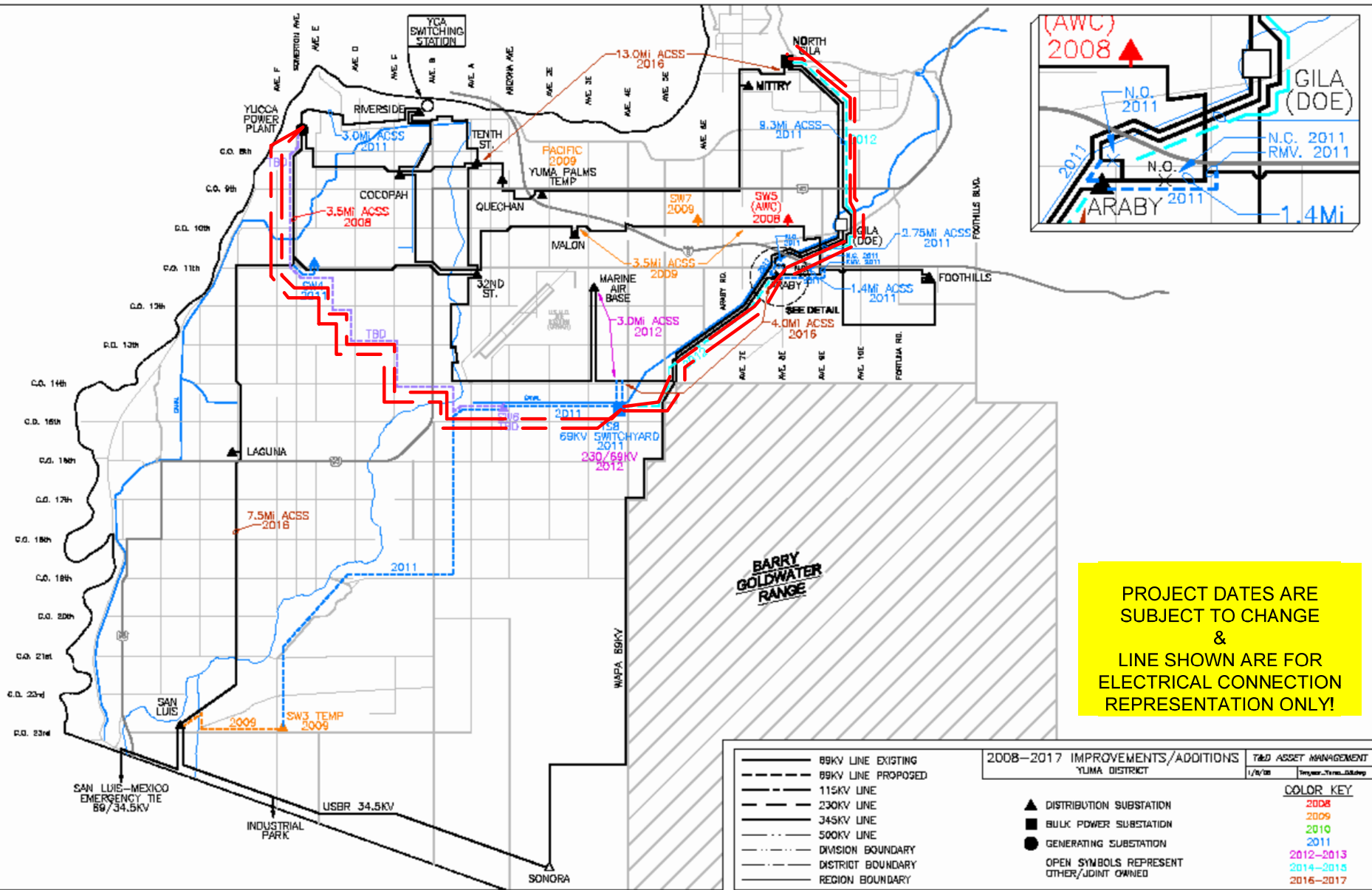
APS Transmission Planning

September 17, 2008

Conceptual Project Description

- **Develop a 230 kV ring circuit in the Yuma area**
 - **Two options will be studied:**
 - **Option One**
 - » **Two 230kV lines from N.Gila to the future TS8 230kV Substation.**
 - » **From the TS8 substation two new 230kV lines continue to a new Yucca 230kV substation.**
 - **Option Two**
 - » **Joint project with North Branch Resources / Western**
 - » **One 230kV line from N.Gila to the New Yucca 230kV substation.**
 - » **One 230kV line from Gila to TS8 230kV substation.**
 - » **One/two 230kV line(s) from TS8 to the new Yucca 230kV substation.**
 - **Both options are shown in slides 3&4.**

Option One

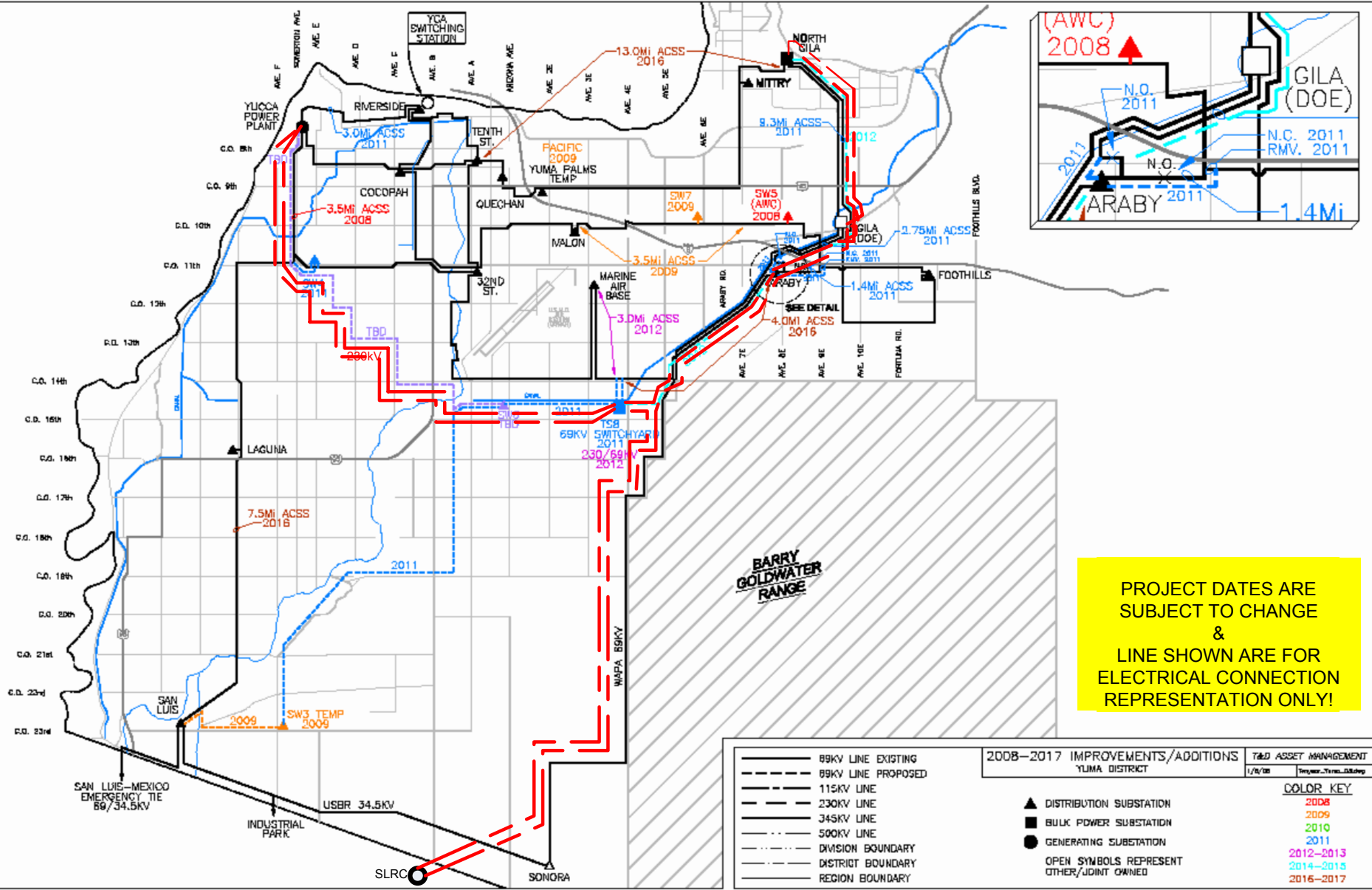


PROJECT DATES ARE SUBJECT TO CHANGE & LINE SHOWN ARE FOR ELECTRICAL CONNECTION REPRESENTATION ONLY!

2008-2017 IMPROVEMENTS/ADDITIONS YUMA DISTRICT		T&E ASSET MANAGEMENT	
		1/1/08	1/1/08
—	69KV LINE EXISTING	▲	DISTRIBUTION SUBSTATION
- - -	69KV LINE PROPOSED	■	BULK POWER SUBSTATION
—	115KV LINE	●	GENERATING SUBSTATION
—	230KV LINE	○	OPEN SYMBOLS REPRESENT OTHER/JOINT OWNED
—	345KV LINE		
—	500KV LINE		
---	DIVISION BOUNDARY		
---	DISTRICT BOUNDARY		
---	REGION BOUNDARY		

COLOR KEY	
2008	2008
2009	2009
2010	2010
2011	2011
2012-2013	2012-2013
2014-2015	2014-2015
2016-2017	2016-2017

Option Two



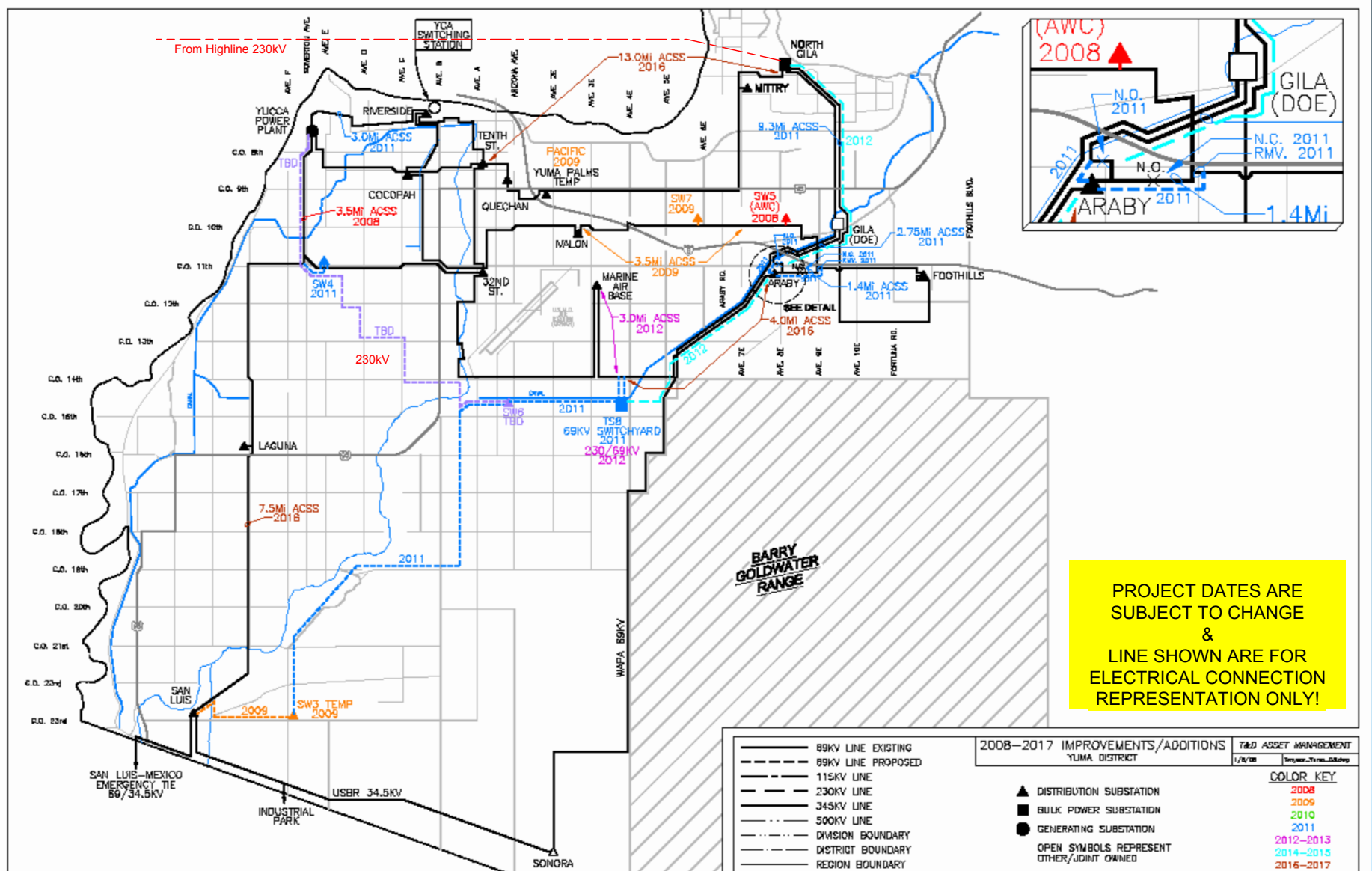
Project Needs/Benefits

- Increase load serving capability to Yuma and the surrounding area.
- Increase scheduling capability
- Provides a more reliable transmission system to the area.
- Access to renewable resources

Project Status

- May 2008 meeting in Yuma
 - IID, WAPA, WMIDD attended
 - APS Ten-Year Plan projects in Yuma, including a conceptual 230kV ring-circuit
 - IID's plans for the area
 - WMIDD's plans for the area
- Study plan is being written
- Two cases were sent out to IID and WMIDD for project updates

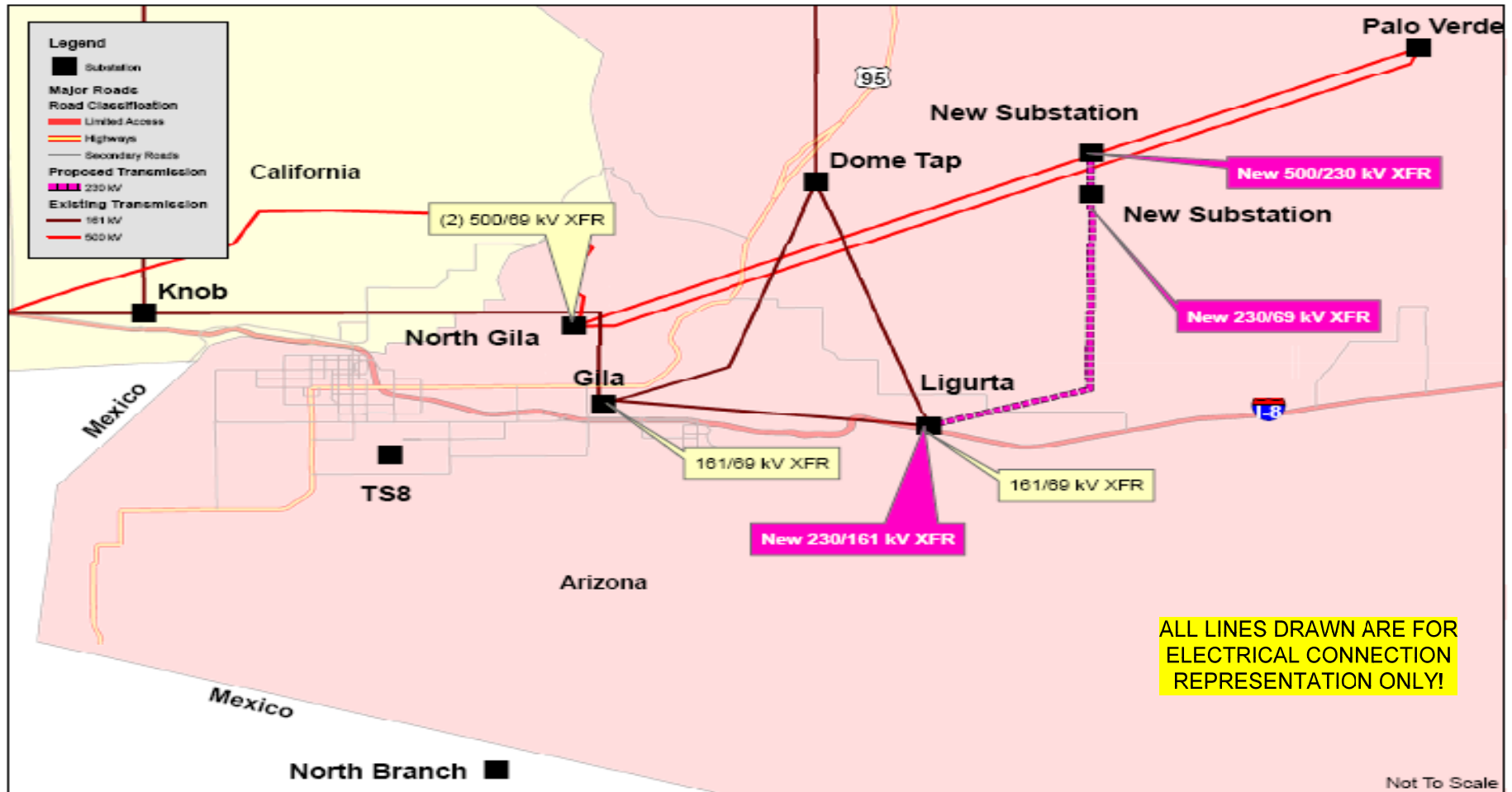
IID's Planned Projects Diagram



WMIDD's Conceptual Projects

- **Two Conceptual Project options**
 - **Option 1**
 - **From the N.Gila #2 500kV line; Build a new 500/230kV substation and a 230kV line to the Ligurta substation.**
 - **Option 2**
 - **Build a new 230 kV line from the future PV-N.Gila #2 500/230kV substation to a future Gila 230kV substation.**
 - **Both Options are shown in slides 10 & 11**

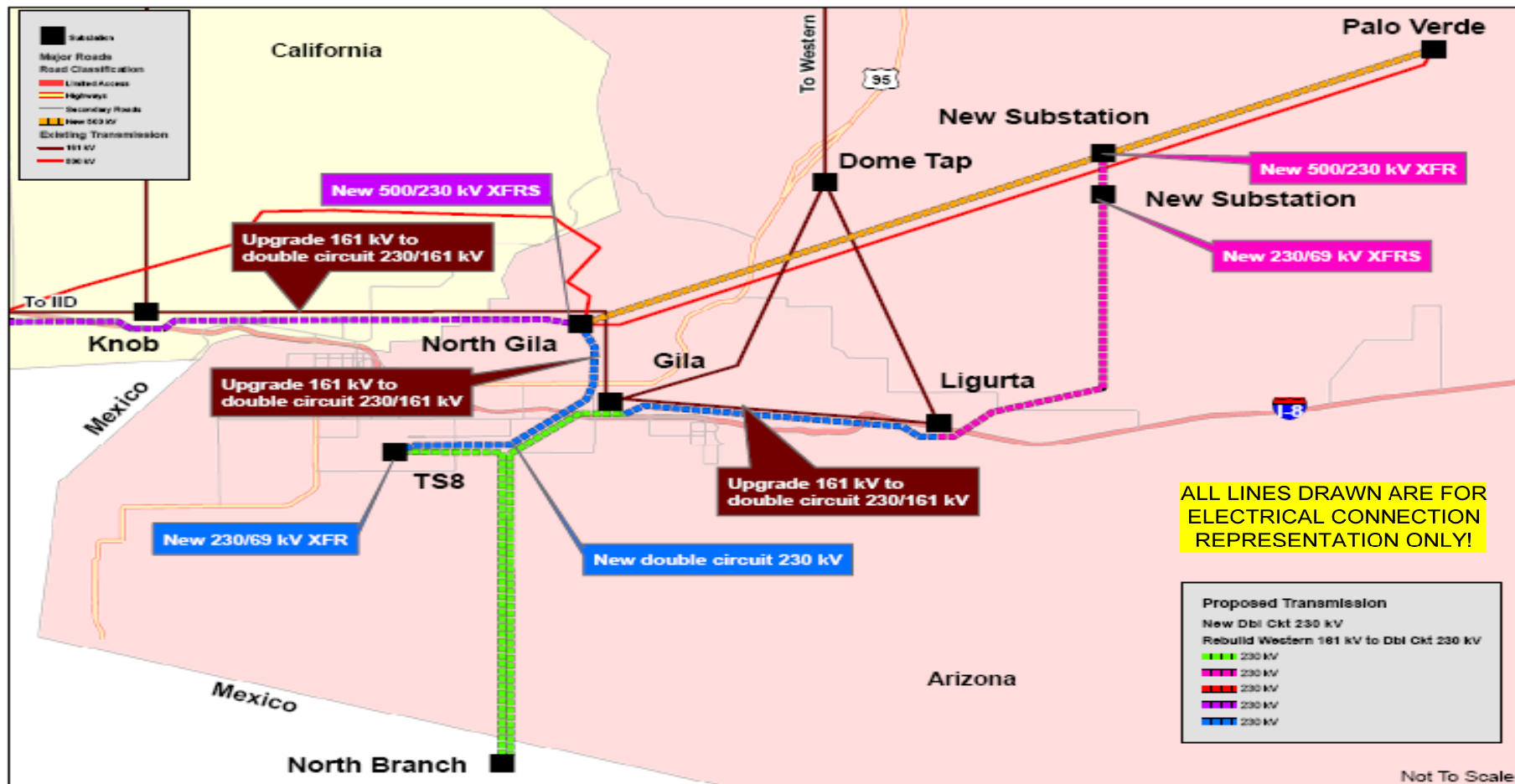
WMIDD Option 1 Project



WMIDD Project



WMIDD Option 2 Project



Yuma Area Projects

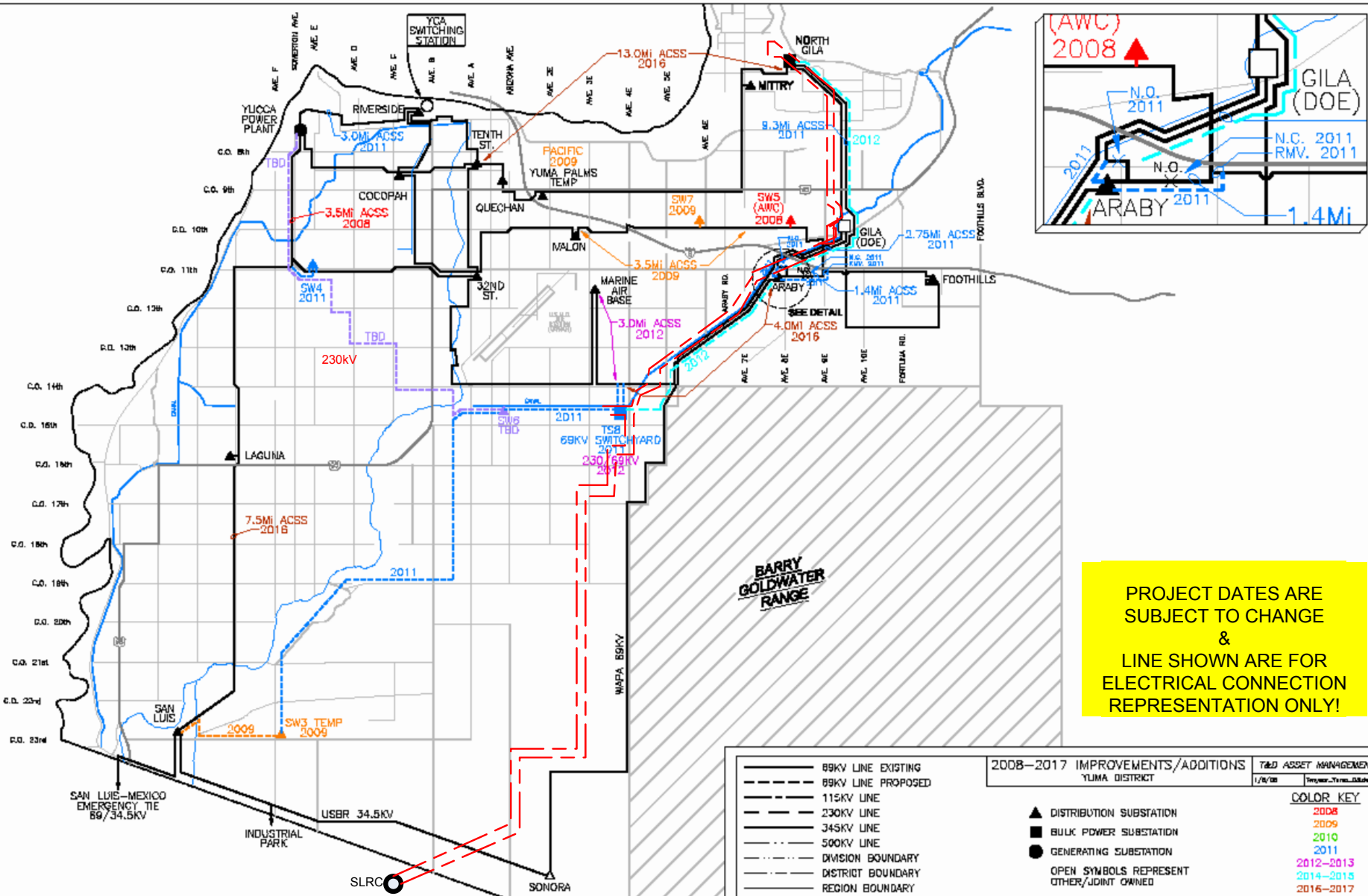


North Branch / Western Project

- **Proposed Projects**

- Build a new ~600 MW generation station (SLRC) just **s**outh of the Arizona/Mexico border.
- Two options are under consideration
 - Option 1:
 - Build two new 230kV lines from SLRC to a new Gila 230kV substation.
 - Build two new 230kv lines from the future Gila 230kV substation north to the N.Gila substation.
 - Option 2:
 - Build two new 230kV lines from SLRC.
 - » First circuit would go to the new Gila 230kV substation.
 - » Second circuit would go to the future APS TS-8 230kV substation and then out to the new Gila 230kV substation.
 - Build two new 230kV lines from the new Gila 230kV substation to the N.Gila substation.
 - Both options are shown in slides 13 &14.

North Branch Project (Option 2)



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- 345KV LINE
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2008-2017 IMPROVEMENTS/ADDITIONS YUMA DISTRICT		T&D ASSET MANAGEMENT
		1/8/08
▲	DISTRIBUTION SUBSTATION	
■	BULK POWER SUBSTATION	
●	GENERATING SUBSTATION	
○	OPEN SYMBOLS REPRESENT OTHER/JUNIOR OWNED	
		COLOR KEY
		2008
		2009
		2010
		2011
		2012-2013
		2014-2015
		2016-2017

Combined Conceptual Projects

