



WATER  **TOMORROW**
2020 Integrated Resources Plan

Draft Scenario Assumptions and Preliminary Analysis

Member Agency Technical Workgroup Meeting

October 14, 2020

QUANTIFICATION APPROACH

2020 IRP Analysis of Supply/Demand Links Will Evolve

Sep - Oct

Dec - Jan

Professional Judgment

- MWD preliminary assessments
- Member Agency Input
- Apply throughout process

Evidence Gathering

- Member Agency Input
- Research & Confirmation
- Expert Consultation

**Finalize
Scenario
Assumptions**

Preliminary Modeling Analysis

**Refined
Analysis**

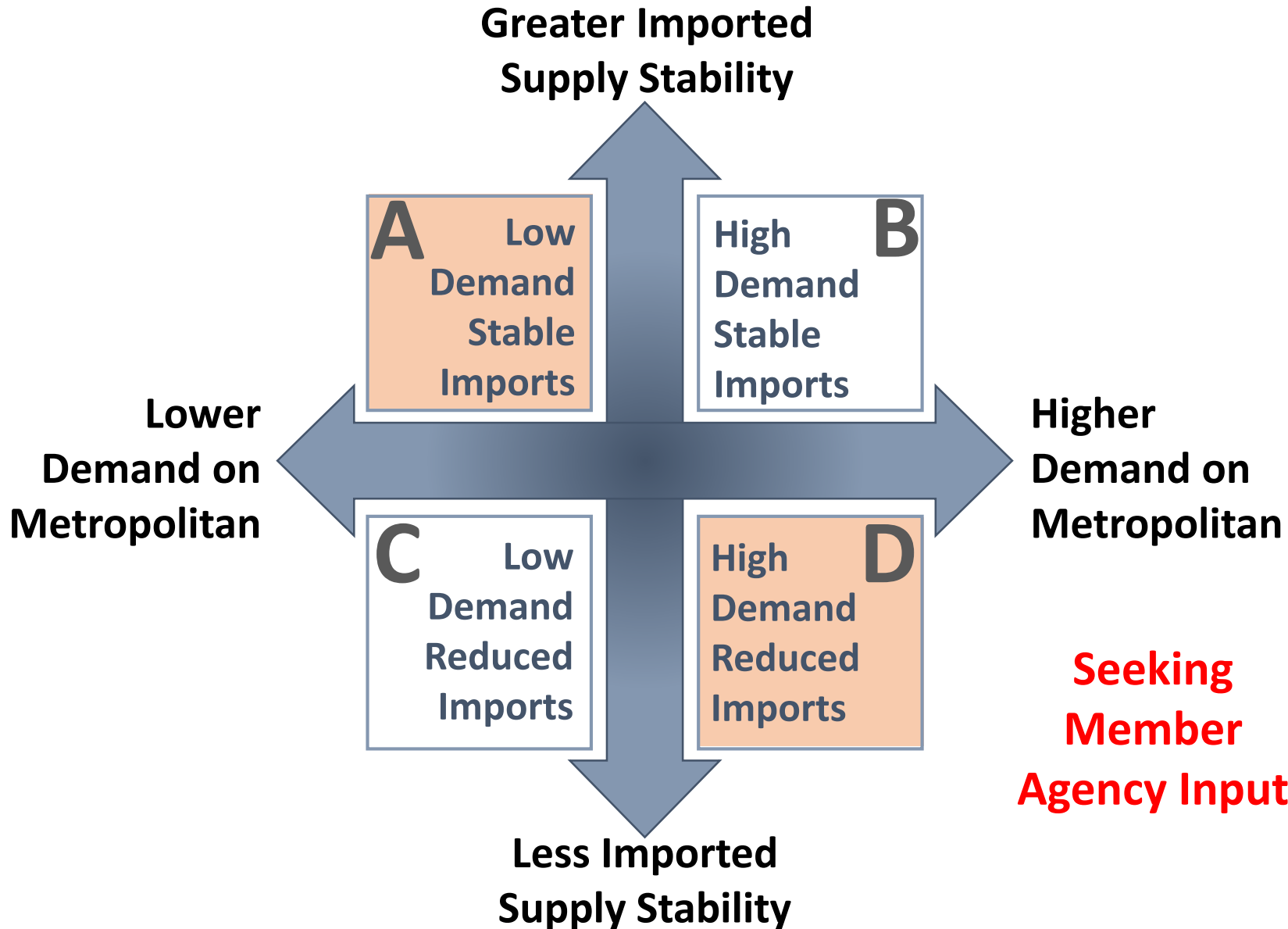
Phase 1

Phase 2

Phase 3

PROGRESS TO DATE – PHASE 1

Developing Assumptions and Preliminary Analysis



- Began with Scenarios A and D
- Focused on Retail Demand and Local Supply
- Drafted Scenario Assumptions
- Prepared Preliminary Analysis

SCENARIO A – PHASE 1 RETAIL DEMAND ASSUMPTIONS

A Low Demand Stable Imports

This scenario is driven by a struggling economy, low population growth, and continued water use ethic across the state. Natural recharge is plentiful due to gradual impacts from climate change and low pumping from groundwater basins keeps demand for imported water stable.

Supply/Demand Link	Assumptions
Population	<ul style="list-style-type: none"> Reduced by 1.7 million people from SCAG & SANDAG forecast for 2045 (~8% reduction) Continue historic low growth rate observed in 2018 and 2019 over the long-term (~45k/yr)
Households	<ul style="list-style-type: none"> Reduced from SCAG & SANDAG – Fewer homes built over the next 25 years Consideration to housing type and spatial distribution across subregions within service area <ul style="list-style-type: none"> Predisposed toward affordable apartments and condominiums within urban centers
Employment	<ul style="list-style-type: none"> Reduced from SCAG & SANDAG – Similar to conditions following the Great Recession (2010-2012) Reduced working age population and participation
Climate	<ul style="list-style-type: none"> Gradual climate impacts to be included (not quantified in phase 1)
Water Use Ethic	<ul style="list-style-type: none"> Water use ethic continues. No rebound assumed
Economy	<ul style="list-style-type: none"> A slow economy leads to low growth in water demand Struggling economy reflected in Supply/Demand link assumptions above
Non Consumptive Use Demands	<ul style="list-style-type: none"> GW Replenishment: Use average recharge from observed 2010-2012 (prior to drought) Seawater Barrier: Consistent with current barrier needs Agriculture: Reflect recent averages and 2015 UWMPs

SCENARIO A – PHASE 1 LOCAL SUPPLY ASSUMPTIONS

Local Supplies are plentiful due to minimal climate change impacts. Groundwater Basins are stable with natural replenishment. No additional climate impacts or regulatory requirements for surface water diversions to local reservoirs and the Los Angeles Aqueduct.

Local Supply Type	Assumptions
Local Supply Production	<ul style="list-style-type: none"> Existing and under construction local recycled water, groundwater recovery and seawater desalination projects are producing with no impacts to anticipated yield Scarce financial resources leads to no development of new local projects outside of existing and under construction Stable groundwater basins allow average production to return to levels observed in 2010-2012 A slow economy leads to low overall water demand and prevents groundwater basin overdraft
Los Angeles Aqueduct	<ul style="list-style-type: none"> Used forecast provided by LADWP in August 2020 No climate impacts or additional regulatory impacts

SCENARIO D – PHASE 1 RETAIL DEMAND ASSUMPTION

High Demand Reduced Imports **D**

This scenario is driven by population and economic growth and severe climate impacts. Natural recharge is impaired due to severe climate impacts and basin contamination. Overall demands on MWD are increasing due to the loss of imported and local groundwater supply as well as impaired the Los Angeles Aqueduct yield.

Supply/Demand Link	Assumptions
Population	<ul style="list-style-type: none"> Increased by 2.1 million people from SCAG & SANDAG forecast for 2045 (+180k/yr and ~ 9% higher in total by 2045) Influx of people escaping worse environmental conditions elsewhere and seeking economic opportunity
Households	<ul style="list-style-type: none"> Increased from SCAG & SANDAG – More single family units over the next 25 years Additional consideration to housing type and spatial distribution across subregions within service area <ul style="list-style-type: none"> Gradual increase of single family units inland and multi-family units in the coastal areas
Employment	<ul style="list-style-type: none"> Relatively high rate resembling pre-pandemic job market conditions Increased working age population and same participation rates
Climate	<ul style="list-style-type: none"> Severe climate impacts to be included (not quantified in phase 1)
Water Use Ethic	<ul style="list-style-type: none"> Waning water use ethic. A rebound to pre-drought (2015) conditions assumed by 2030
Economy	<ul style="list-style-type: none"> A growing economy leads to higher overall water demand Growing economy reflected in Supply/Demand link assumptions above
Non Consumptive Use Demands	<ul style="list-style-type: none"> GW Replenishment: Demand is lower as widespread basin contamination disincentivizes buying water Seawater Barrier: Demands increase due to sea level rise Agriculture: Reflect recent averages and 2015 UWMPs

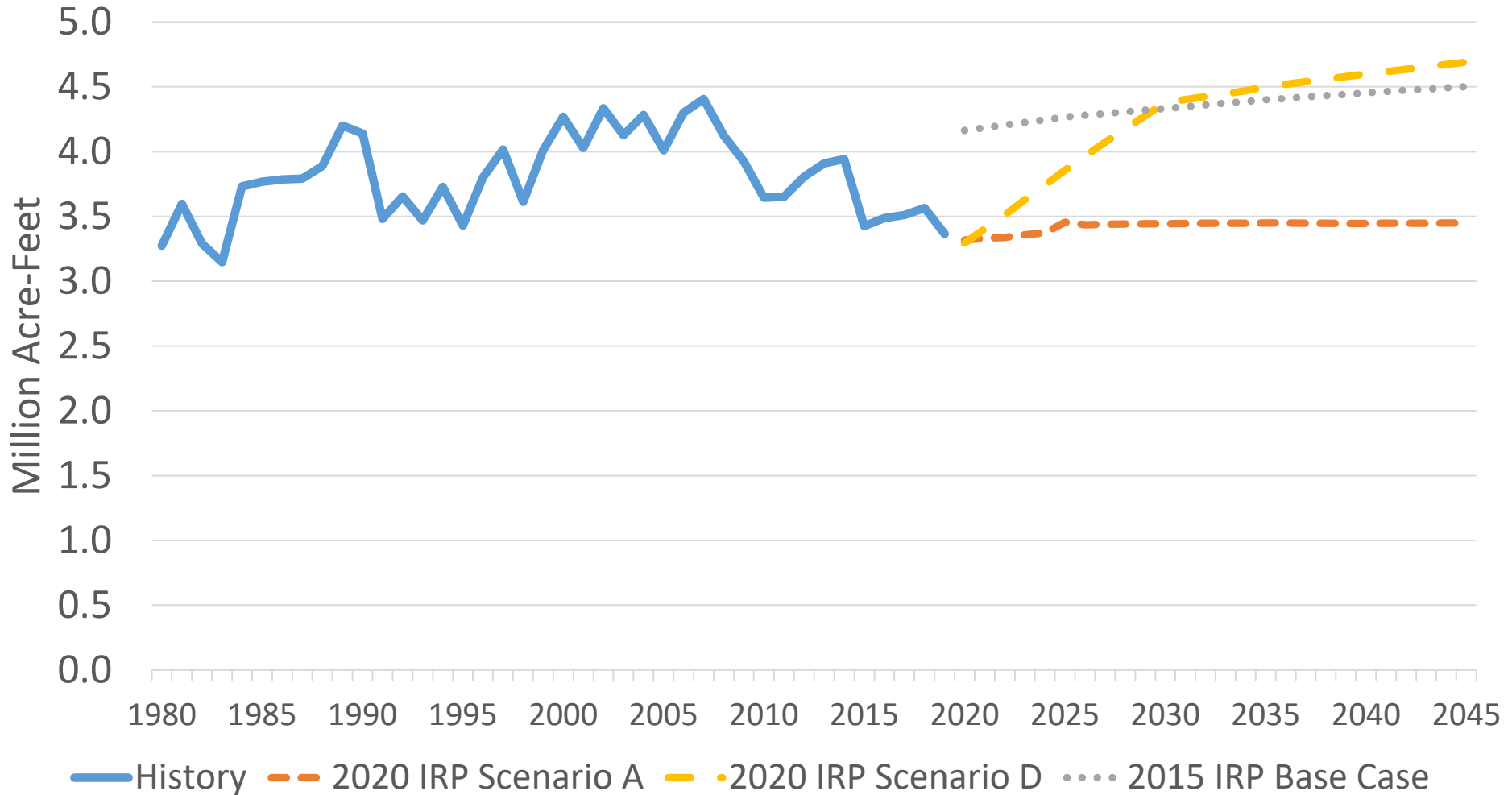
SCENARIO D – PHASE 1 LOCAL SUPPLY ASSUMPTIONS

Local Supplies are reduced due to severe climate change impacts and widespread basin contamination. Groundwater Basins are severely over-drafted with minimal replenishment. Additionally, surface water diversions to local reservoirs and the availability of water from the Los Angeles Aqueduct becomes more variable

Local Supply Type	Assumptions
Local Supply Production	<ul style="list-style-type: none"> • With a good economy, the region has the resources needed to develop the full inventory of local supply projects reported through the 2020 Local Supply Survey • Climate Change and institutional stressors lead to frequent unplanned outages of existing and future local projects. As a result, projects produce significantly less than their planned ultimate yield • Groundwater basins are impaired due to seawater intrusion, sporadic natural replenishment, contamination, increased regulations and over drafting
Los Angeles Aqueduct	<ul style="list-style-type: none"> • Used forecast provided by LADWP in August 2020 • Modified forecast to reflect climate change impacts to precipitation patterns • No additional regulatory impacts included

PRELIMINARY PHASE 1 ANALYSIS RESULTS

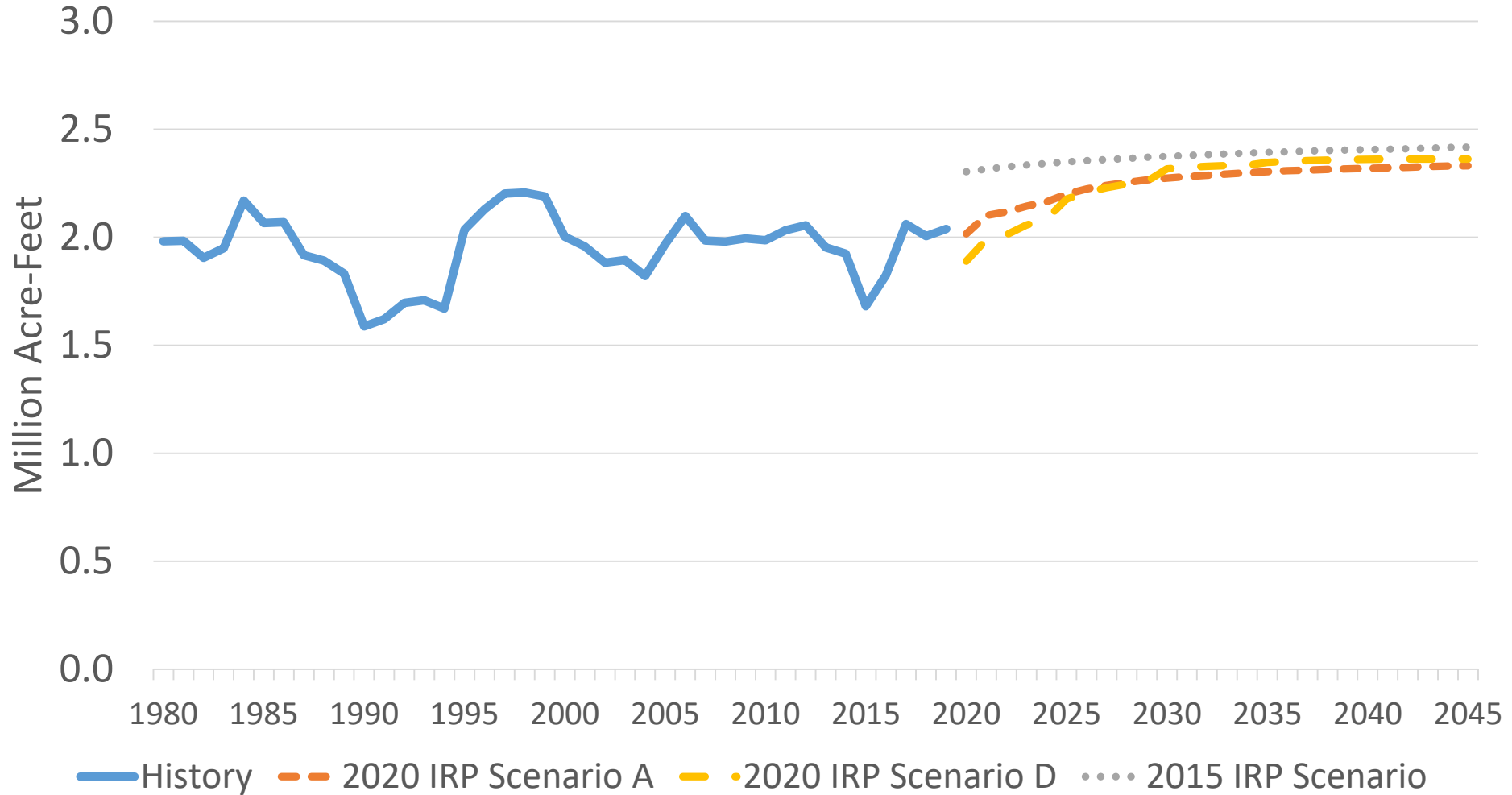
Total Demand



Phase 2 and 3 analysis will change these results

PRELIMINARY PHASE 1 ANALYSIS RESULTS

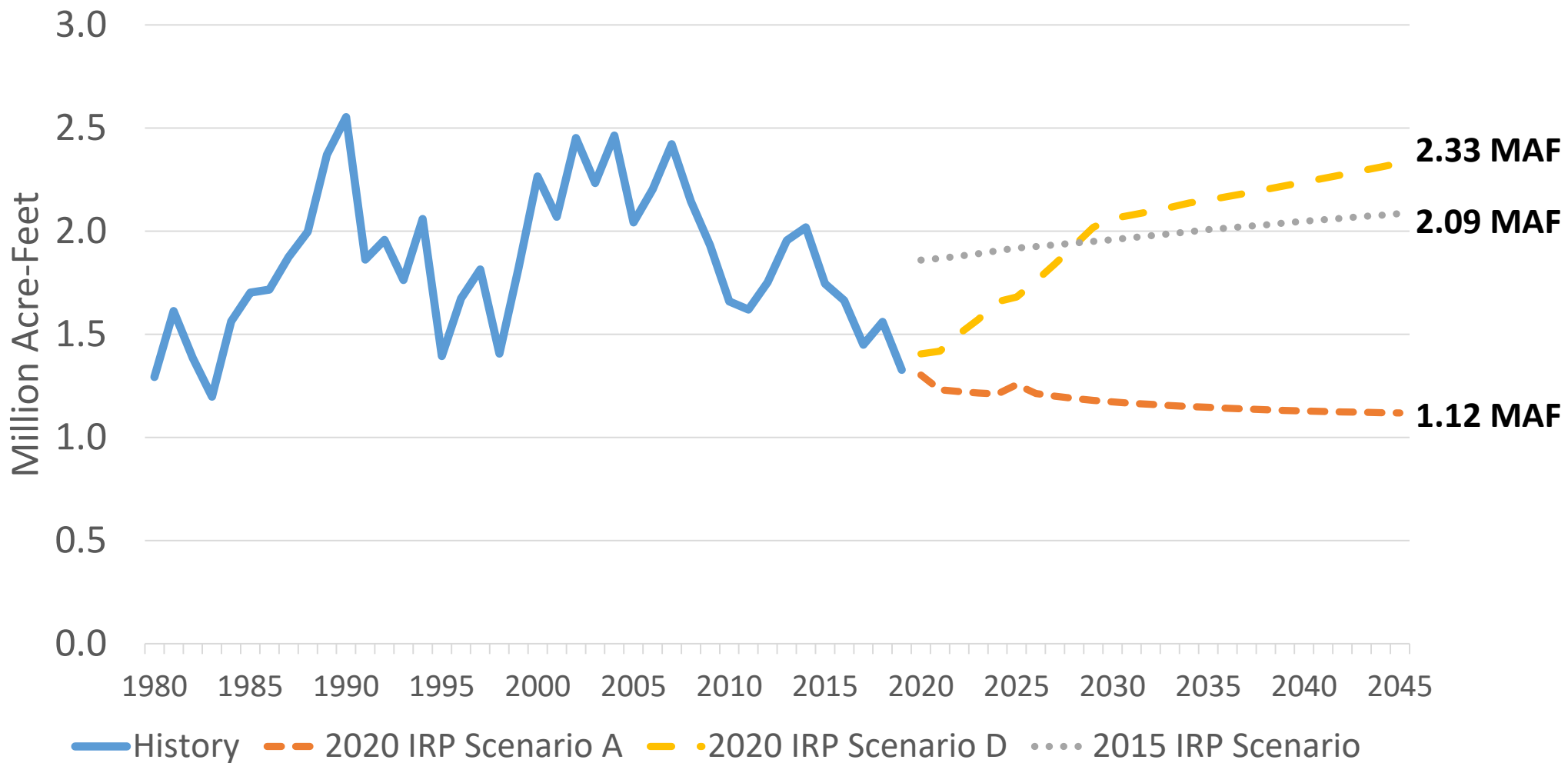
Total Local Supplies



Phase 2 and 3 analysis will change these results

PRELIMINARY PHASE 1 ANALYSIS RESULTS

Total Net Demand on Metropolitan



Phase 2 and 3 analysis will change these results