



WATER  TOMORROW
2020 Integrated Resources Plan

Draft Scenario Assumptions and Preliminary Analysis

Member Agency Manager Meeting

October 16, 2020

OVERVIEW

- Recent Activity
- Scenario Development Update
 - Phased approach for the analysis
 - Preliminary Phase 1 assumptions and analysis
- Next steps
 - Your input for adjusting scenario assumptions
 - Additional opportunities for interaction

RECENT MEETINGS AND WORKSHOPS

- Sep 18 – Member Agency Managers Meeting
 - Scenario Framework and Strawman Assumptions
- Sep 22 – IRP Special Committee Meeting
 - Draft Scenarios and Strawman Assumptions
 - Public outreach approach
- Oct 8 – UWMP Tech Workshop No. 1
 - Approach, Assumptions and Schedule

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
Scenarios

Preliminary Modeling Analysis

Refined Analysis

Phase 1

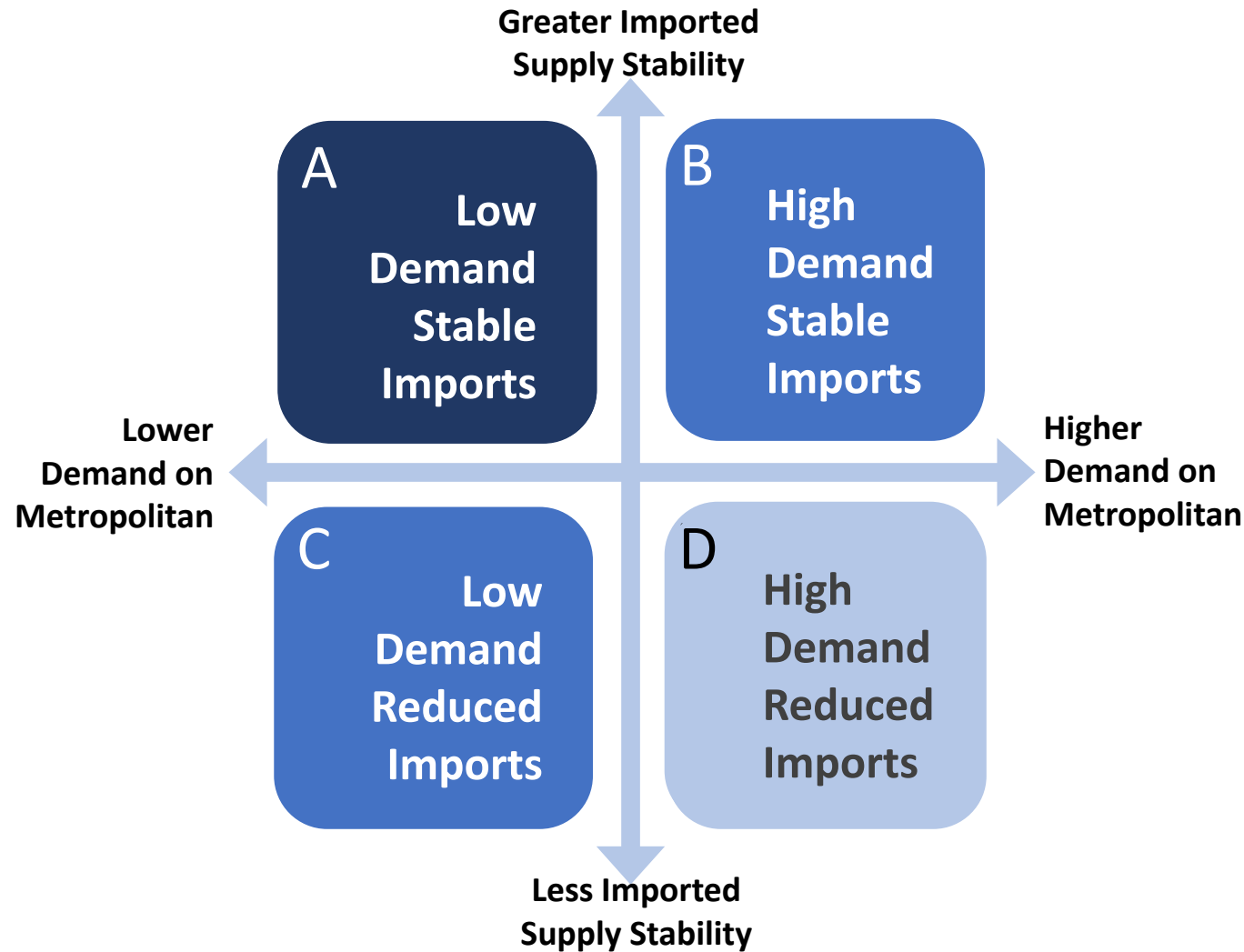
Phase 2

Phase 3

SCHEDULE

OCTOBER	NOVEMBER	DECEMBER	JANUARY
<p><u>Phase 1 Assumptions</u></p> <ul style="list-style-type: none"> Supply/demand link impacts to Retail demand, Local supply for Scenarios A and D <p><u>Phase 1 Analysis</u></p> <ul style="list-style-type: none"> Retail Demand, Local Supply quantification for Scenarios A and D <p><u>Support for Phase 1</u></p> <ul style="list-style-type: none"> Member Agency feedback Discuss phased approach Initiate discussions with experts 	<p><u>Phase 1 Assumptions</u></p> <ul style="list-style-type: none"> Supply/Demand link impacts to Retail demand, Local supply and imported supplies for each scenario Initial assessment of SWP and CRA reliability <p><u>Phase 1 Gap Analysis</u></p> <ul style="list-style-type: none"> IRPSIM modeling based on Phase 1 assumptions to determine reliability prior to actions for each scenario <p><u>Support for Phase 2</u></p> <ul style="list-style-type: none"> Member Agency Workshop focused on Retail Demand and Local Supply Discuss initial expert feedback Member Agency feedback <p><u>Policy Discussion</u></p> <ul style="list-style-type: none"> Review proposed policy questions using Phase 1 analysis 	<p><u>Phase 2 Assumptions</u></p> <ul style="list-style-type: none"> Refined Supply/Demand link impacts to Retail demand, Local supply and imported supplies for each scenario <p><u>Phase 2 Gap Analysis</u></p> <ul style="list-style-type: none"> IRPSIM modeling based on Phase 2 assumptions to determine reliability prior to actions for each scenario <p><u>Support for Phase 3</u></p> <ul style="list-style-type: none"> Member Agency Workshop focused Imported Supplies Discuss expert feedback Member Agency feedback <p><u>Policy Discussion</u></p> <ul style="list-style-type: none"> Informed discussion based on Phase 2 Gap Analysis 	<p><u>Phase 3 Assumptions</u></p> <ul style="list-style-type: none"> Further refined Supply/Demand link impacts to Retail demand, Local supply and imported supplies for each scenario <p><u>Phase 3 Gap Analysis</u></p> <ul style="list-style-type: none"> IRPSIM modeling based on Phase 2 assumptions to determine reliability prior to actions for each scenario <p><u>Support for Resource Mix Development</u></p> <ul style="list-style-type: none"> Member Agency Workshop focused Actions for each scenario Discuss expert feedback Member Agency feedback <p><u>Policy Discussion</u></p> <ul style="list-style-type: none"> Implications of resource mix options (Iterative process)

PHASE 1 PROGRESS TO DATE



- **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

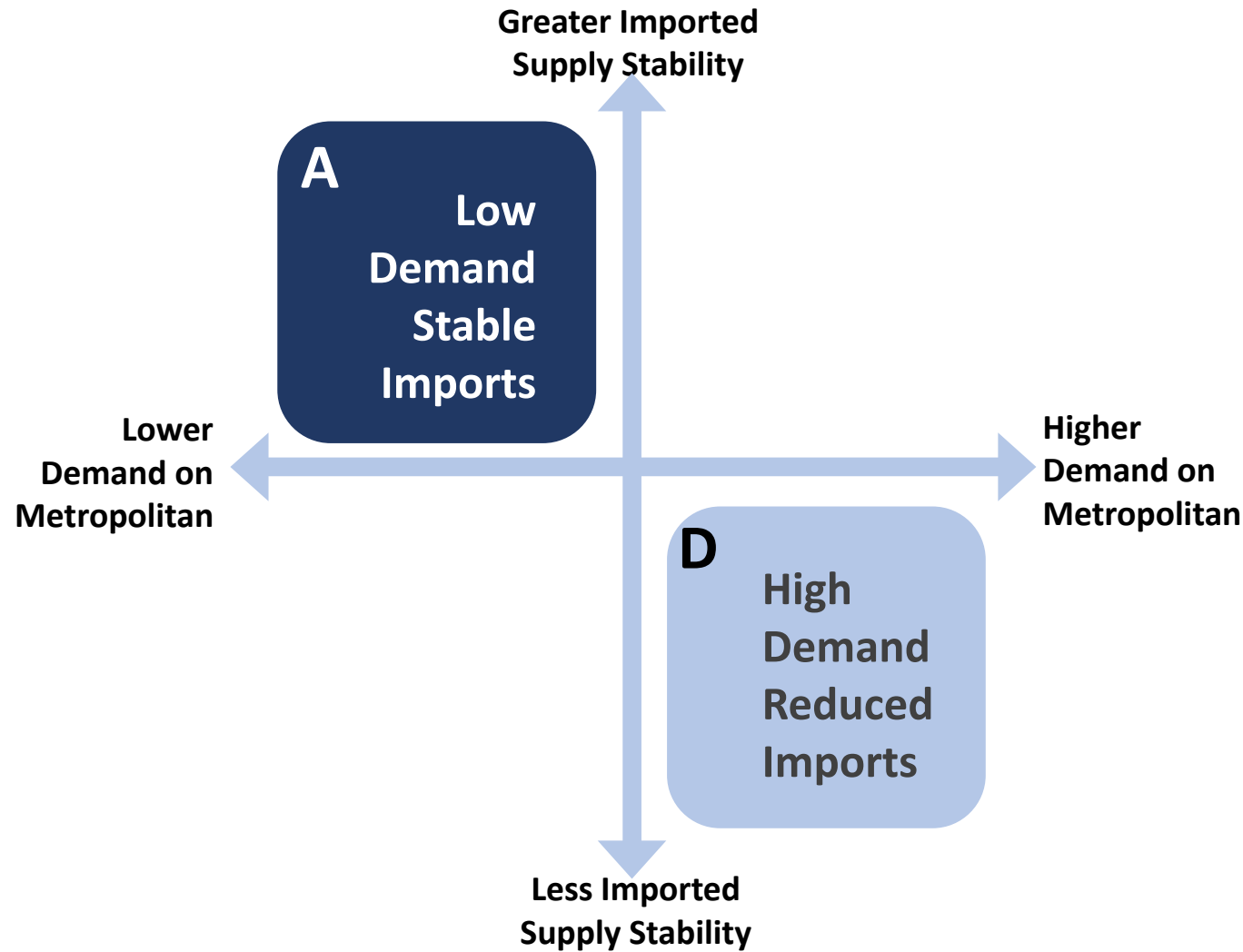
SCENARIO A – PHASE 1 LOCAL SUPPLY ASSUMPTIONS

A Low Demand Stable Imports

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 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

PHASE 1 PROGRESS TO DATE



SCENARIO D – PHASE 1 RETAIL DEMAND ASSUMPTION

D High Demand Reduced Imports

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

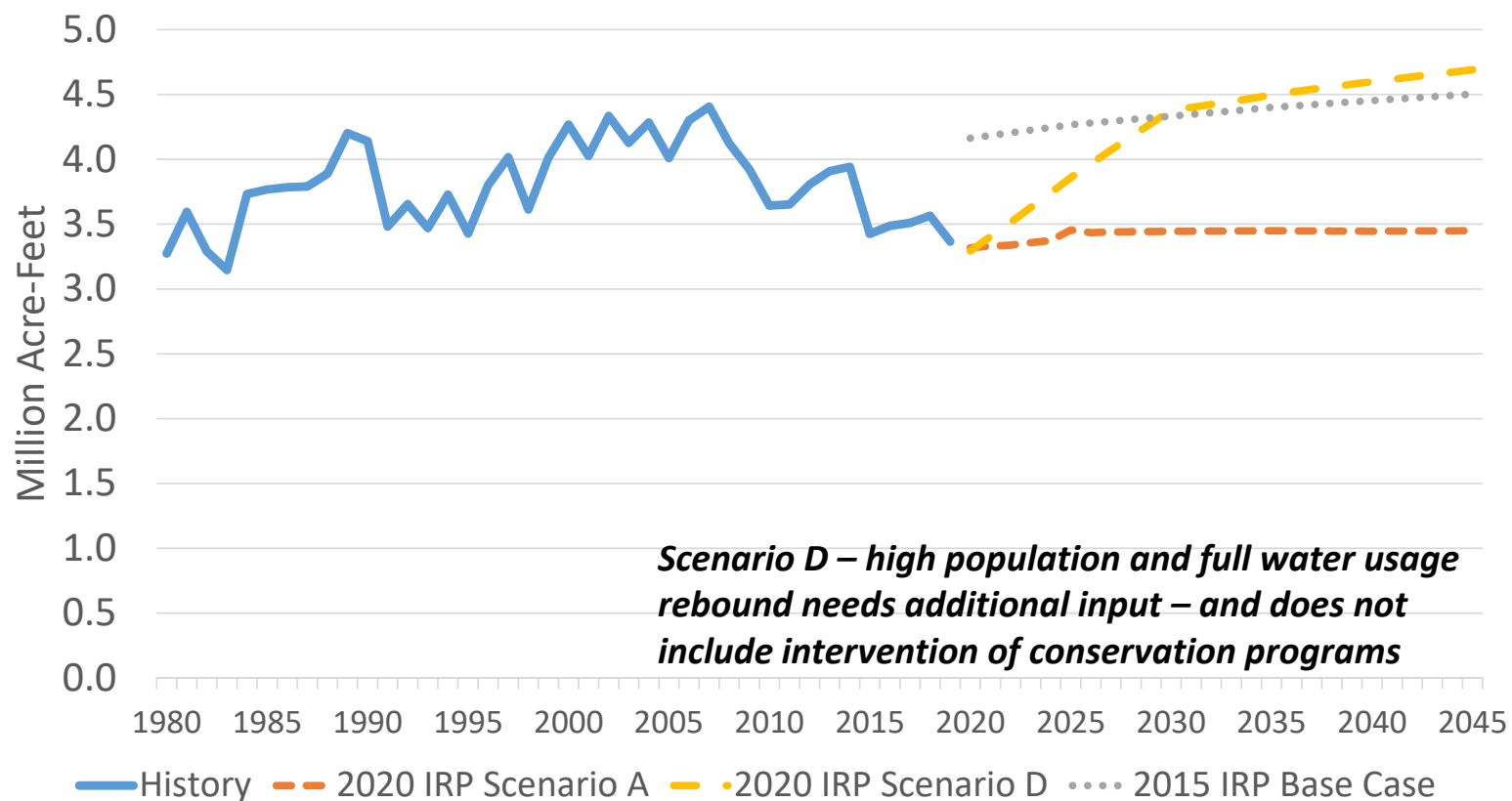
D High Demand Reduced Imports

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

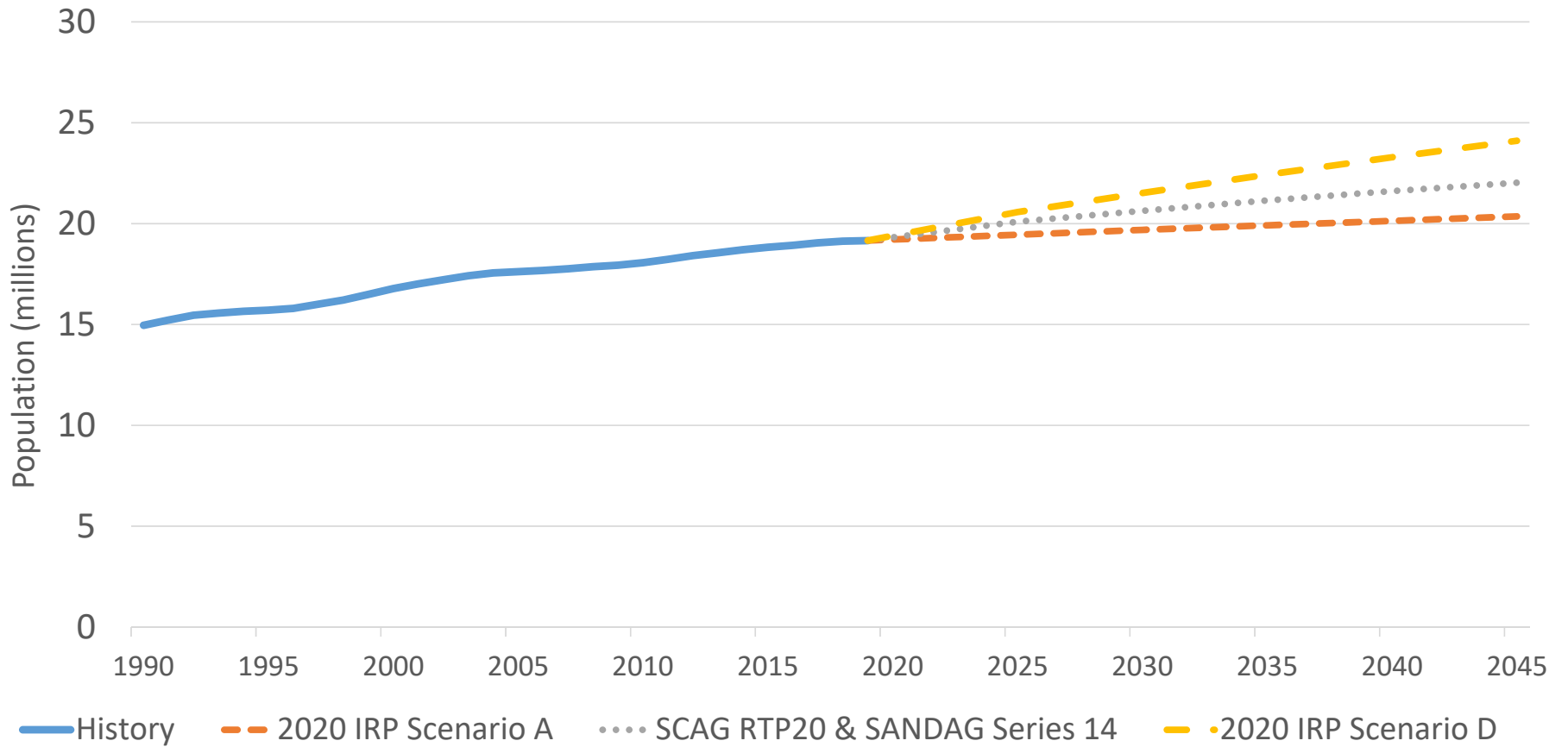
PRELIMINARY PHASE 1 ANALYSIS RESULTS

Total Demand

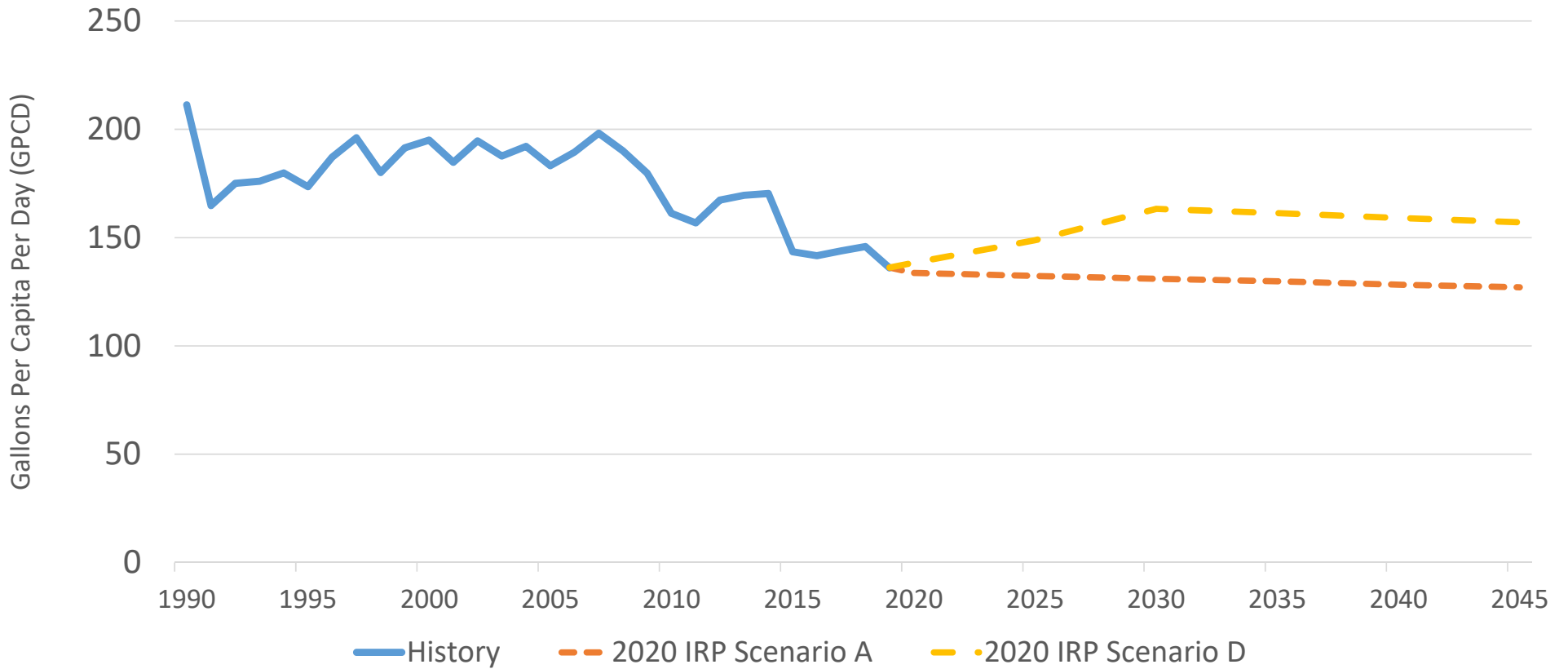


Results will change with input and further analysis

Total Population

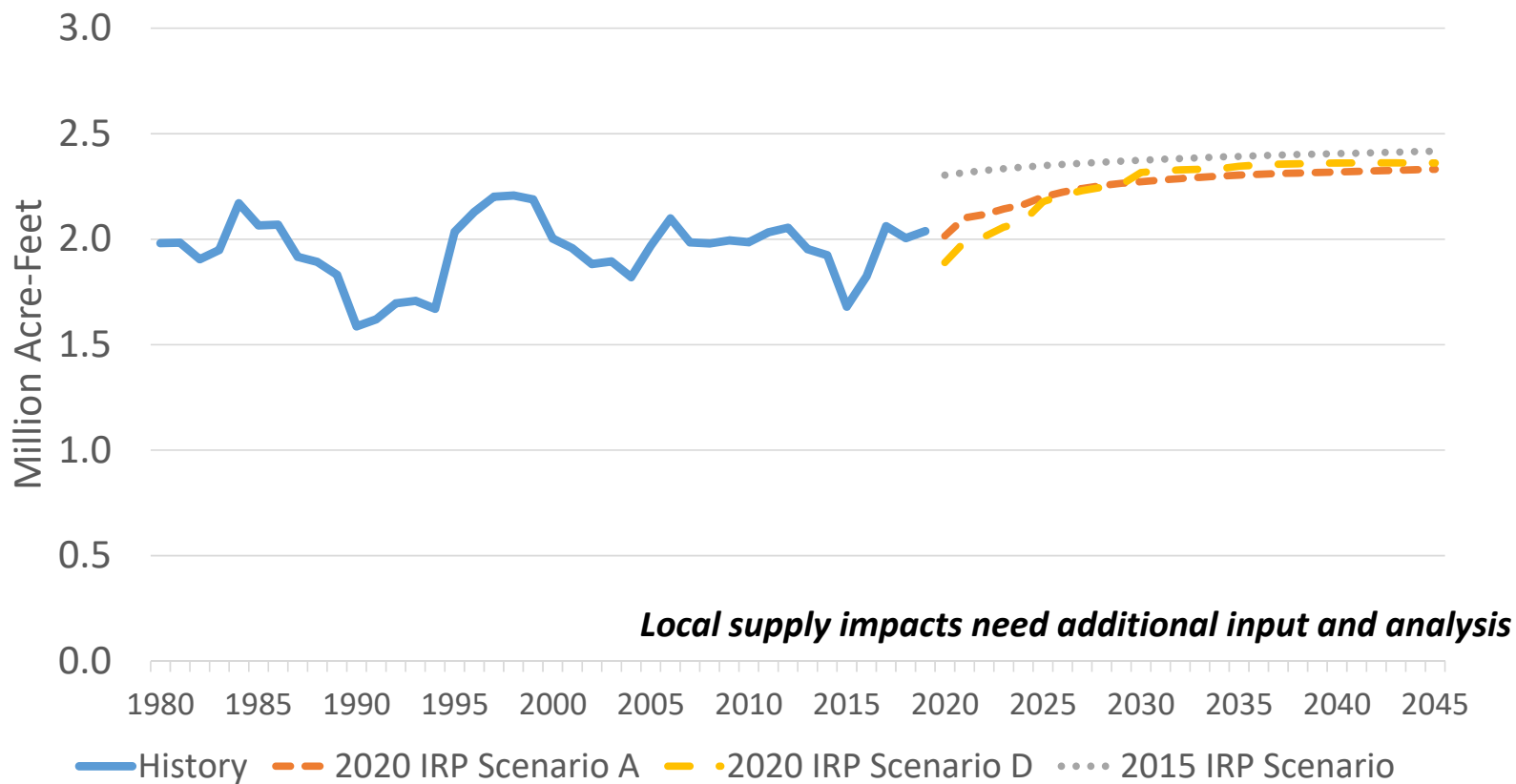


Retail M&I GPCD



PRELIMINARY PHASE 1 ANALYSIS RESULTS

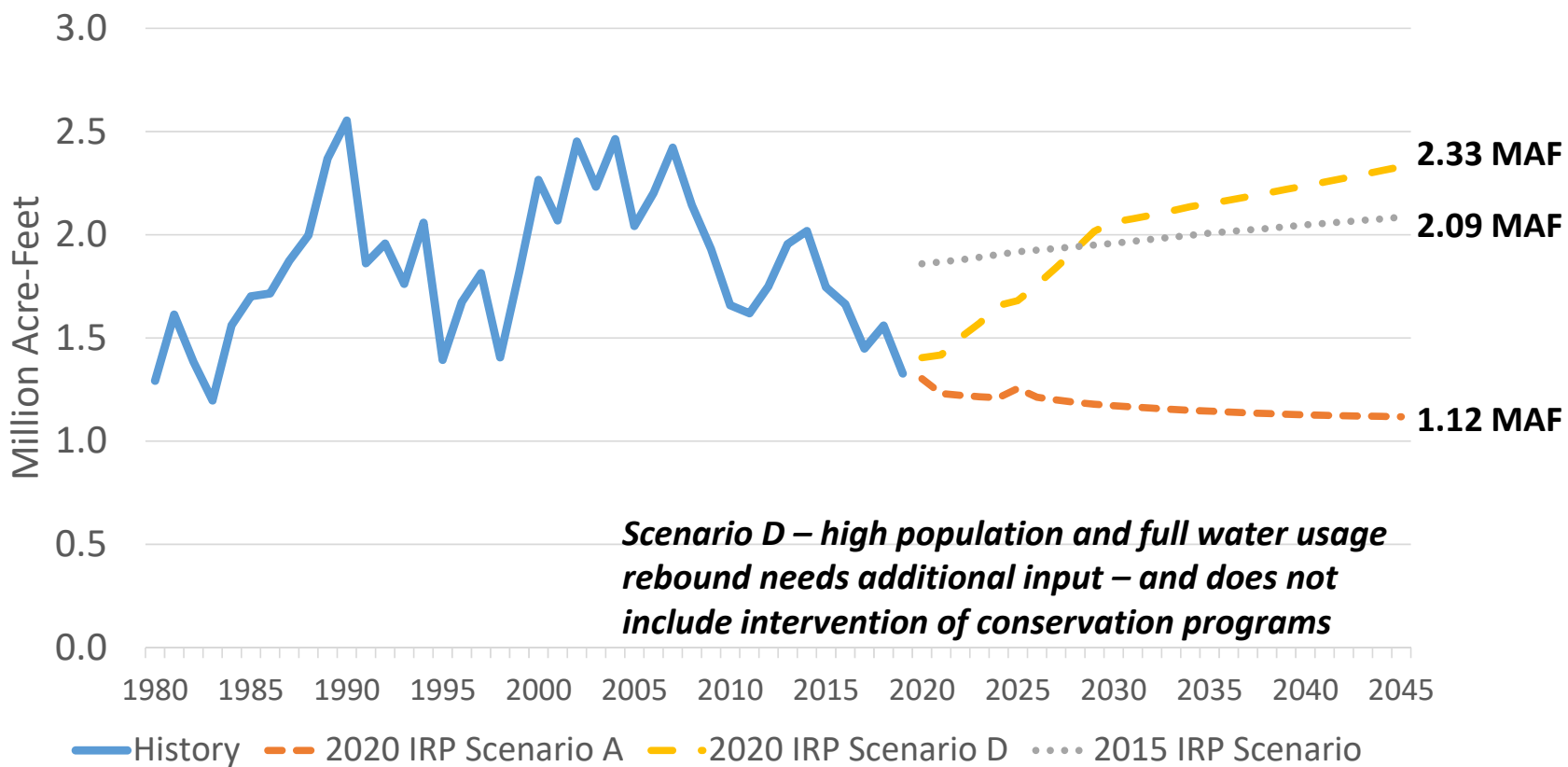
Total Local Supplies



Results will change with input and further analysis

PRELIMINARY PHASE 1 ANALYSIS RESULTS

Total Net Demand on Metropolitan



Results will change with input and further analysis

WHAT'S NEXT

- **Qualitative-Quantitative Assessment**
 - Continue gathering evidence and identifying specific areas for Member Agency input
- **Member Agency Collaboration**
 - Continue developing assumptions and conducting quantification for Member Agency review per schedule
 - Additional meetings for Member Agency input
- **October IRP Committee meeting**
 - Report back on Member Agency input to date

