IBCC March Meeting

Golden, Colorado

March 5, 2013

Overview

Current Approach

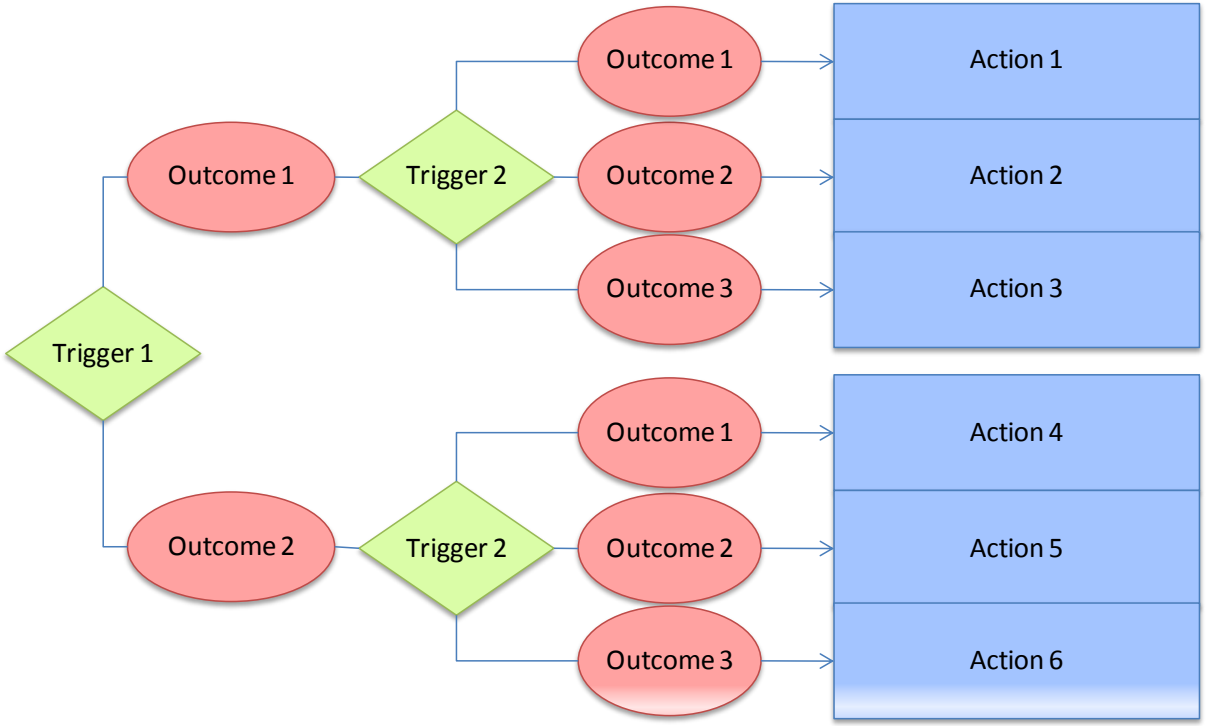
1. Summarize roundtables' portfolios and the range of each portfolio element
2. Get specific about projects and actions that make up a portfolio
3. Apply those specified portfolios to the five scenarios developed by the IBCC
4. Some portfolios will do better in some scenarios than in others
5. This will help us understand what the low regrets/no regrets actions may be
6. This best professional judgment can launch a policy level discussion about how the portfolios could be improved and then improve them

Adaptive Management and Metrics

Adaptive Management Overview

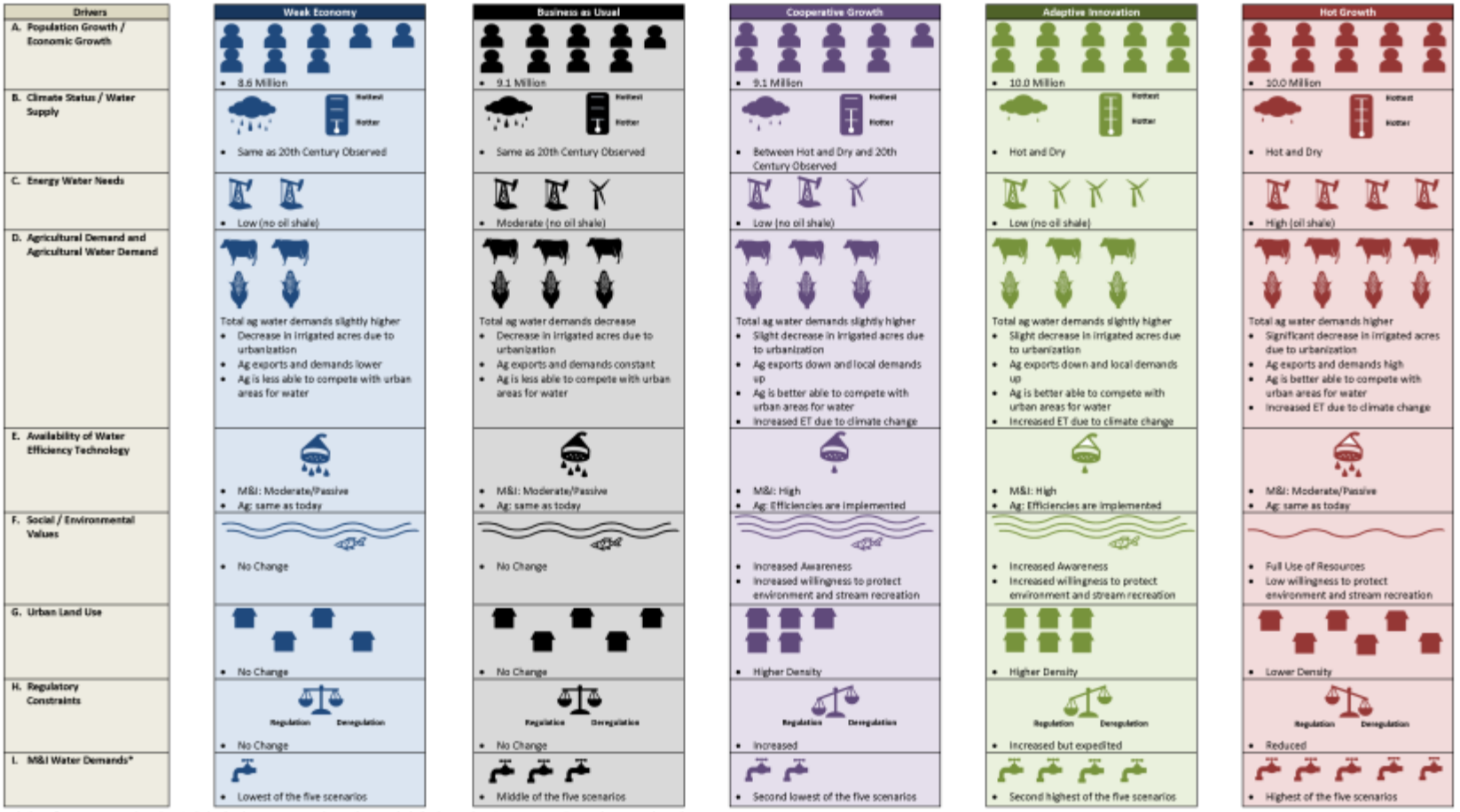
- Adaptive management is a process in which phased decisions (or actions) are made based on outcomes of identified risk triggers.
- Triggers are tied to drivers of identified scenarios of the future (e.g., water demand growth, regulations, climate, etc.)

Example



Scenario Overview – See Handout

State of Colorado Future Water Supply Scenarios



* The M&I Water Demands ranking includes for drivers A, C, E, and G, and may include further analysis incorporating climate change at a later date.

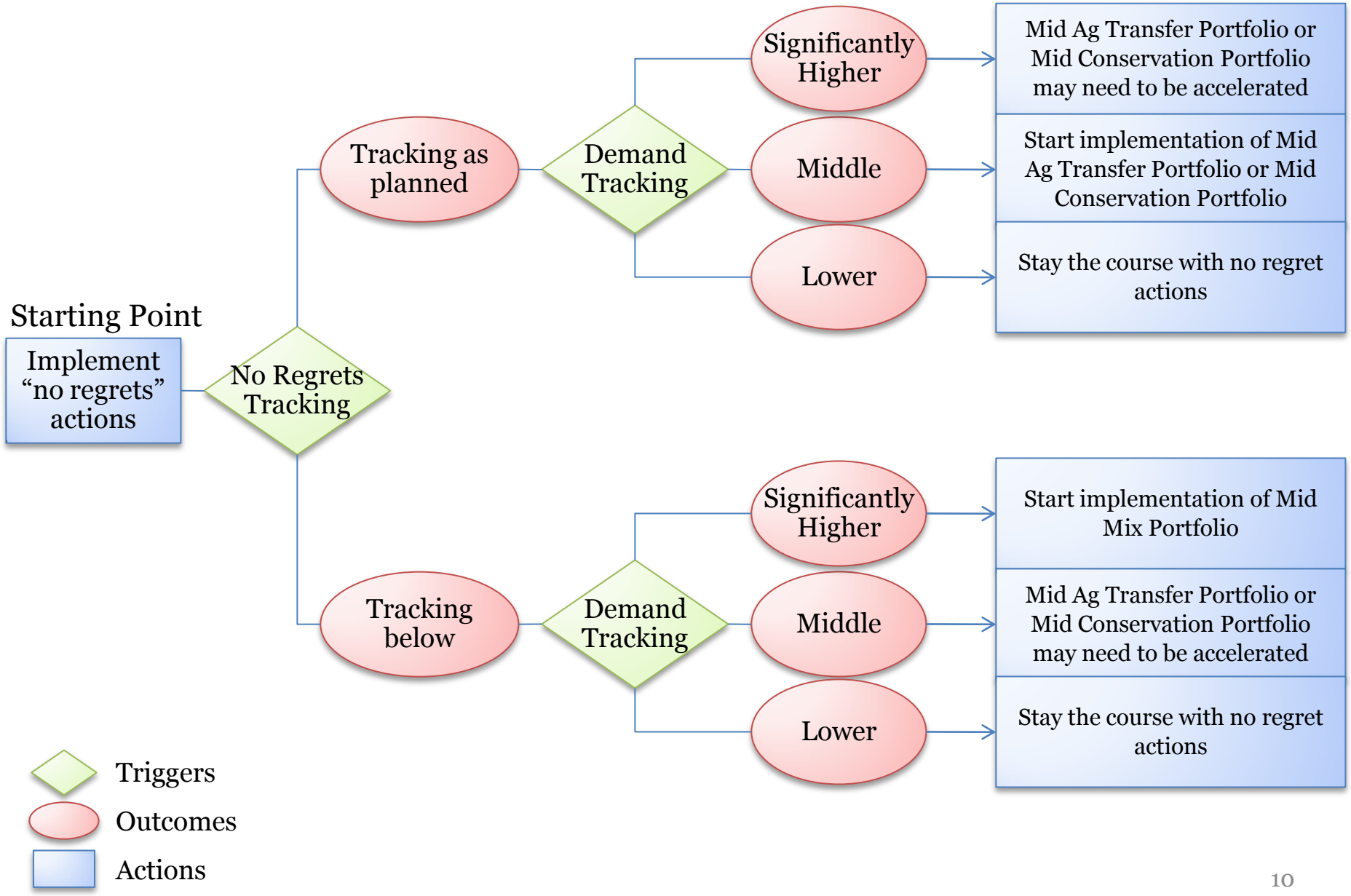
EXAMPLE Triggers for Adaptive Management

Year	Triggers	Outcomes
2016	How is implementation of no regrets tracking?	• Tracking as planned • Tracking below as planned
	How are water demands tracking?	• Lower than expected • As expected • Higher than expected
2022	How are water demands trending?	• Lower than expected • As expected • Higher than expected
	How are agricultural transfers trending?	• Tracking about the same • Tracking higher
	Are social values more favorable towards water efficiency, environment, and land use?	• No • About the same • Yes
	What are the regulatory constraints?	• No change • More stringent • Less stringent

EXAMPLE Triggers for Adaptive Management

Year	Triggers	Outcomes
2028 **2034** **2040**	How are water demands tracking?	• Lower than expected • As expected • Higher than expected
	How are agricultural transfers trending?	• Tracking about the same • Tracking higher
	Are social values more favorable towards water efficiency, environment, and land use?	• No • About the same • Yes
	Is climate change observable?	• Yes • No

Adaptive Management for Year 2016



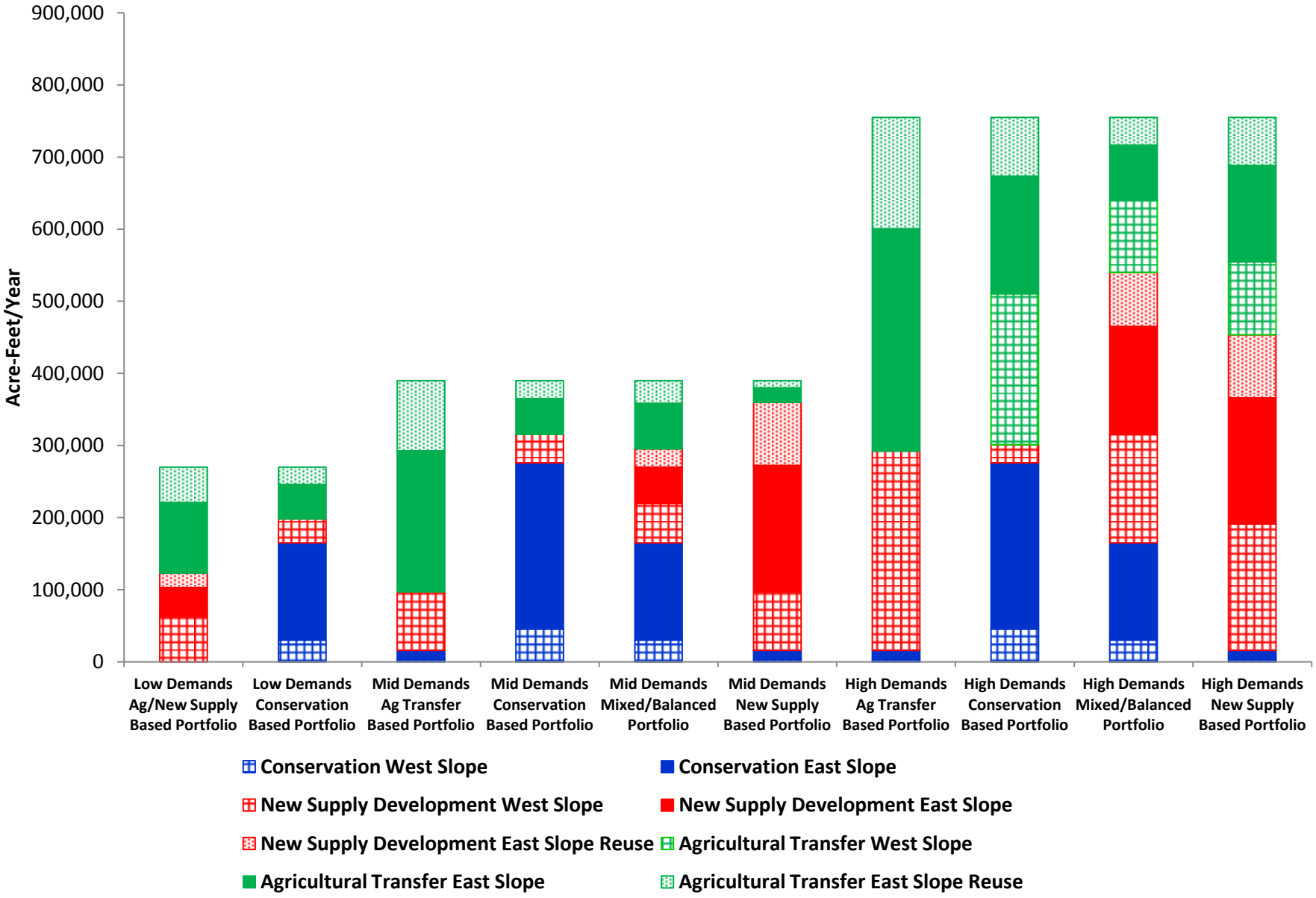
Evaluation Approach

- Qualitative approach based on IBCC committee feedback
- Approach
  - Identified subset of portfolios that applied to each scenario
  - Qualitatively examined subset of portfolios considering M&I cost, M&I reliability, environmental and recreational impacts, and agricultural impacts for each scenario
- All 10 portfolios will be used in the adaptive management plan

Qualitative Portfolio Evaluation

Evaluation Category	Factors Considered During Evaluation
Cost: Lower, Moderate, Higher	Assessment based on SWSI 2010 reconnaissance-level cost estimates of present value costs considering capital and future O&M costs, and water conservation costs.
Reliability: Lower, Moderate, Higher	Assessment of availability or certainty once implemented, based on hydrology available described in scenarios; with consideration of reliability of available conservation technologies based on scenario.
Environmental & Recreational Health (E&R): Lower, Moderate, Higher	Assessment based on amount of depletions statewide; consideration of the amount of conflict needed to be resolved with portfolio. Note: If site-specific details are developed regarding portfolio it could be optimized to improve environmental and recreational health.
Agricultural Impacts: Lower, Moderate, Higher	Assessment based on portfolio results, considering how many irrigated acres are needed to implement the portfolio. Note: If ATM programs are implemented they could be optimized to reduce the economic impacts of agricultural transfers.
Feasibility: Lower, Moderate, Higher	Assessment considering how difficult the portfolio will be to implement based on scenario description.

Summary Portfolios to Evaluate for a Range of Scenarios



Draft Summary Scenario & Portfolio Matrix - See Handout

Draft Summary Scenario & Portfolio Matrix

E&R = Environmental and Recreational Health

Demands	Portfolio Name	Scenarios											
		Weak Economy				Business as Usual				Cooperative Growth				Adaptive Innovation				Hot Growth			
Low	Ag/New Supply Based Portfolio	Cost:	🔴	🟡	⚪																
		Reliability:	⚪	⚪	🟢																
		E&R:	🔴	🟡	⚪																
		Ag Impacts:	🔴	🟡	⚪																
		Feasibility:	⚪	🟡	⚪																
	Conservation Based Portfolio	Cost:	⚪	⚪	🟢																
		Reliability:	🔴	⚪	⚪																
		E&R:	⚪	⚪	🟢																
		Ag Impacts:	⚪	⚪	🟢																
		Feasibility:	⚪	🟡	⚪																
Mid	Ag Transfer Based Portfolio					Cost:	🔴	⚪	⚪	Cost:	🔴	⚪	⚪								
						Reliability:	⚪	⚪	🟢	Reliability:	⚪	⚪	🟢								
						E&R:	🔴	🟡	⚪	E&R:	🔴	🟡	⚪								
						Ag Impacts:	🔴	⚪	⚪	Ag Impacts:	🔴	⚪	⚪								
						Feasibility:	⚪	⚪	🟢	Feasibility:	⚪	🟡	⚪								
	Conservation Based Portfolio					Cost:	⚪	🟡	🟢	Cost:	⚪	⚪	🟢								
						Reliability:	🔴	⚪	⚪	Reliability:	⚪	🟡	⚪								
						E&R:	⚪	⚪	🟢	E&R:	⚪	⚪	🟢								
						Ag Impacts:	⚪	🟡	⚪	Ag Impacts:	⚪	🟡	⚪								
						Feasibility:	⚪	🟡	⚪	Feasibility:	⚪	⚪	🟢								
	Mixed/Balanced Portfolio					Cost:	⚪	🟡	⚪	Cost:	⚪	🟡	⚪								
						Reliability:	⚪	🟡	⚪	Reliability:	⚪	🟡	🟢								
						E&R:	⚪	🟡	🟢	E&R:	⚪	🟡	🟢								
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						Feasibility:	🔴	🟡	⚪	Feasibility:	🔴	🟡	⚪								
	New Supply Based Portfolio					Cost:	🔴	⚪	⚪	Cost:	🔴	⚪	⚪								
						Reliability:	⚪	🟡	🟢	Reliability:	⚪	🟡	⚪								
						E&R:	🔴	⚪	⚪	E&R:	🔴	⚪	⚪								
						Ag Impacts:	⚪	⚪	🟢	Ag Impacts:	⚪	⚪	🟢								
						Feasibility:	⚪	🟡	⚪	Feasibility:	🔴	⚪	⚪								
High	Ag Transfer Based Portfolio													Cost:	🔴	⚪	⚪	Cost:	🔴	🟡	⚪
														Reliability:	⚪	🟡	⚪	Reliability:	⚪	⚪	🟢
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	Conservation Based Portfolio													Cost:	⚪	⚪	🟢	Cost:	⚪	🟡	🟢
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	Mixed/Balanced Portfolio													Cost:	⚪	🟡	⚪	Cost:	⚪	🟡	⚪
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	New Supply Based Portfolio													Cost:	🔴	⚪	⚪	Cost:	🔴	🟡	⚪
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														Ag Impacts:	⚪	🟡	⚪	Ag Impacts:	🔴	🟡	⚪
														Feasibility:	🔴	⚪	⚪	Feasibility:	⚪	🟡	⚪

Next Steps

- Task Group to review efforts based on comments from 2/28/2013 meeting
- Consider additional qualitative metrics
  - Rate impacts
  - Willingness to pay

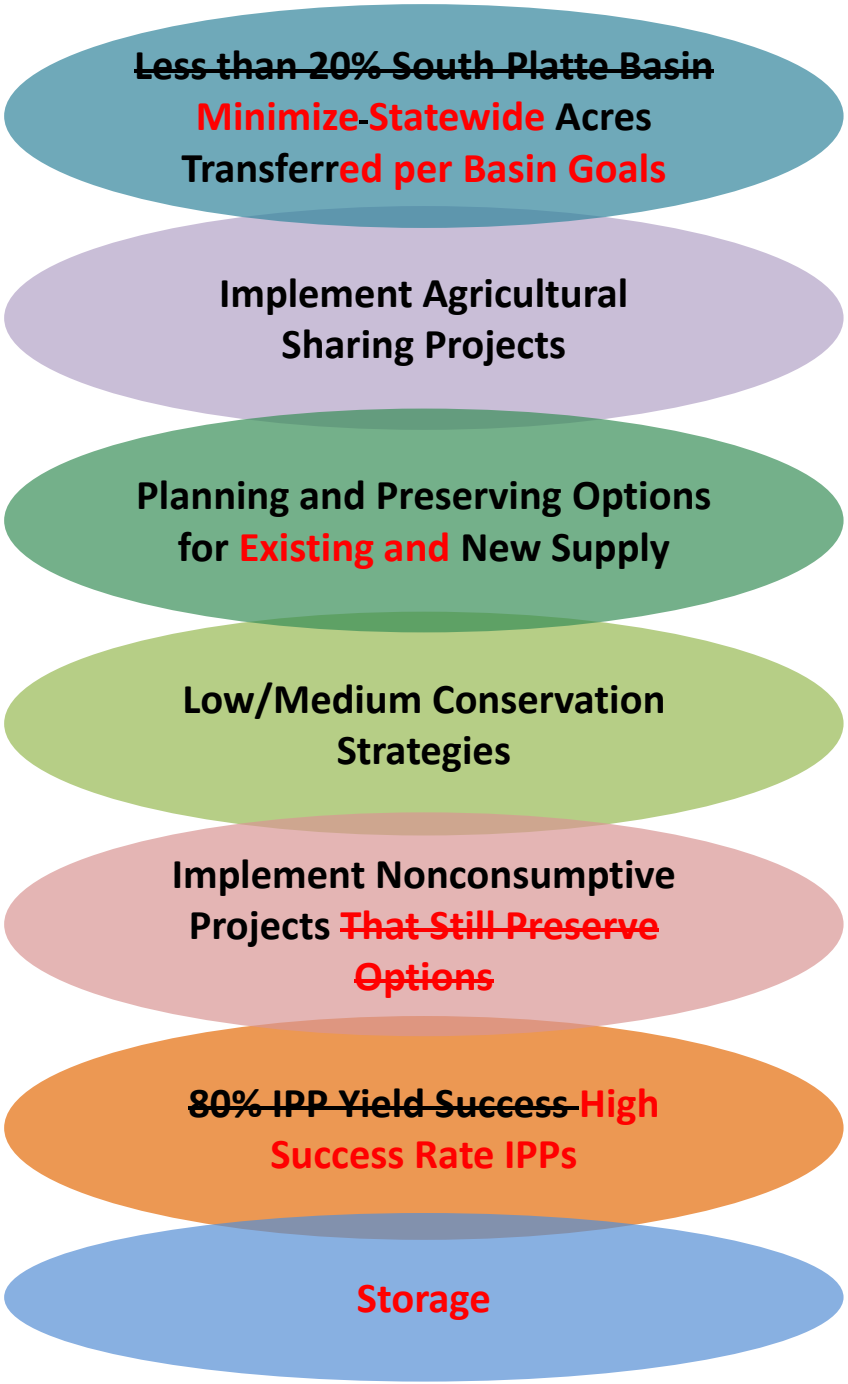
Implementation of "Low/ No Regrets" Actions

Slides that follow reflect IBCC feedback at November meeting – shown in red

“Low/No Regrets” Actions Overview

- Statewide actions that are needed in the near-term, no matter what future may occur
- Initial Implementation Components of Adaptive Management
- Represents first phase of State Water Plan /SWSI 2010 Implementation
- Implementation on these actions can be immediate
- Addresses the M&I Gap
- Actions that if taken have little or no downside in terms of costs and benefits regardless of the future
- Actions we agree to move on for right now

"Low/No Regrets"



~~Less than 20%~~
~~South Platte Basin~~
Minimize
Statewide Acres
Transferred per
Basin Goals

Completed and Ongoing Actions	Potential Future Actions
• Implement ATM Grant Program • Ongoing CWCB and IBCC support	• Track ongoing process • Preserve new supply options • Land use planning • Support conservation, IPPs • Implement IPPs • Implement ATM Grant Program • Ongoing CWCB and IBCC support • Identify infrastructure and implement storage • Identify funding to meet agricultural gap • Implement agricultural efficiency programs • Establish Basin Goals (e.g. less than 20% of South Platte Acres Transferred to M&I)

Implement Agricultural Sharing Projects

Completed and Ongoing Actions	Potential Future Actions
• Super Ditch pilot effort • ATM Grant Programs	• ATM Legislation • Support cooperative agreements • Support pilot programs • Support coupling conservation easements with ISWAs • Integrate West Slope WSRA grant and efforts – Yampa ATM, Aspinall, Compact Compliance Study projects • Super Ditch pilot effort • ATM Grant Programs • Prevent compact curtailment • Implement storage

Minimize-Statewide Agricultural Acres Transferred and Implement Alternative Agricultural Transfers

Completed and Ongoing Actions	Potential Future Actions
• Implement ATM Grant Program • Ongoing CWCB and IBCC support	1) Establish Basin Goals (e.g., less than 20 percent of South Platte acres transferred to M&I) and track ongoing progress a) Track ongoing process 2) Implement ATM Program 3) Implement agricultural efficiency programs 4) Identify infrastructure and implement storage a) Identify multi-purpose opportunities b) Move and store ATM water c) Maintain and improve agriculture d) Prepare for uncertainty in hydrology and climate change 5) Identify funding to meet agricultural gap

Planning and Preserving Options for Existing and New Supply

Completed and Ongoing Actions	Potential Future Actions
• Strategies Report – cost estimates for new supply and agricultural transfers • Potential diversion locations • Risk management strategies – Water Bank – Aspinall Study – Adaptive Management – Alternative Process, i.e., Wild & Scenic	1) Address environmental and recreational needs a) Delineate critical environmental habitats b) Identify & Implement Projects c) Meet NC needs & preserve new supply options 2) Risk Management Strategies a) Water Bank b) Aspinall Study c) Scenario Planning and Adaptive Management d) Alternative Process, i.e., Wild & Scenic e) Others 3) Identify Potential Multi-purpose components of new supply projects 4) Project Identification and Preservation of Options a) Planning Hydrology b) Cooperation with local entities basin of origin/basin of project c) Acquire water rights d) Acquire right of way e) Evaluate financial capability of state/project proponents/partnerships