



WATER FORWARD

INTEGRATED WATER RESOURCE PLAN

Austin Integrated Water Resource Planning Community Task Force

Packet Index

April 3, 2018

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Austin Integrated Water Resource Planning Community Task Force
April 03, 2018 – 4:00 p.m.
Waller Creek Center, Room 104
625 East 10th Street
Austin, Texas 78701

For more information go to:
[Austin Integrated Water Resource Planning Community Task Force](#)

AGENDA

Voting Members:

Sharlene Leurig - Chair	Marianne Dwight	Sarah Richards
Jennifer Walker – Vice Chair	Diane Kennedy	Lauren Ross
Todd Bartee	Perry Lorenz	Robert Mace
Clint Dawson	Bill Moriarty	

Ex Officio Non-Voting Members:

Austin Water: Greg Meszaros
Austin Energy: Kathleen Garrett
Austin Resource Recovery: Sam Angoori
Neighborhood Housing and Community Development: Rebecca Giello
Office of Innovation: Kerry O'Connor
Office of Sustainability: Lucia Athens
Parks and Recreation: Sara Hensley
Watershed Protection: Mike Personett

1. CALL TO ORDER – April 03, 2018, 4:00 p.m.

2. CITIZEN COMMUNICATION

The first 10 speakers signed up prior to the meeting being called to order will each be allowed a three-minute allotment to address their concerns regarding items not posted on the agenda.

3. APPROVAL OF MEETING MINUTES

- a. Approval of the meeting minutes from the March 20, 2018 Task Force meeting (5 minutes)

4. STAFF BRIEFINGS, PRESENTATIONS, AND OR REPORTS

- a. Presentation on Revised Draft Plan Recommendations - City Staff and Consultant Team (45 minutes)
 - i. Task Force Discussion and Input (approximately 45 minutes)

5. SUBCOMMITTEE REPORTS

6. VOTING ITEMS FROM TASK FORCE

7. FUTURE AGENDA ITEMS

8. ADJOURN

Note: Agenda item sequence and time durations noted above are subject to change.

The City of Austin is committed to compliance with the American with Disabilities Act. Reasonable modifications and equal access to communications will be provided upon request. Meeting locations are planned with wheelchair access. If requiring Sign Language Interpreters or alternative formats, please give notice at least 2 days (48 hours) before the meeting date. Please call Austin Integrated Water Resource Planning Community Task Force, at 512-972-0194, for additional information; TTY users route through Relay Texas at 711.

For more information on the Austin Integrated Water Resource Planning Community Task Force, please contact Marisa Flores Gonzalez at 512-972-0194.

MINUTES



The Austin Integrated Water Resource Planning Community Task Force convened in a Regular Meeting on March 20, 2018 at Waller Creek Center, Conference Rm 104, 625 E 10th Street, in Austin, Texas.

Members in Attendance:

Sharlene Leurig - Chair

Jennifer Walker – Vice Chair

William Moriarty

Diane Kennedy

Robert Mace

Todd Bartee

Perry Lorenz

Lauren Ross

Ex-Officio Members in Attendance:

Lucia Athens, Chris Herrington

Staff in Attendance:

Greg Meszaros, Kevin Critendon, Daryl Slusher, Teresa Lutes, Marisa Flores Gonzalez, Joe Smith, Mark Jordan, Prachi Patel, Helen Gerlach, Geneva Guerrero, Bruk Berhanu

Additional Attendees:

Richard Hoffpauir, Tina Peterson, Dan Rodrigo, John Burke, Ron Anderson, Stefan Schuster, David Briggs, Adam Zerrenner, Jerry Roane

1. CALL TO ORDER

Sharlene Leurig, Chair, called the meeting to order at 4:15 p.m.

2. CITIZEN COMMUNICATION: GENERAL

Adam Zerrenner spoke about coordination and technical assistance

Jerry Roane spoke about cost to bring water from Sam Rayburn

3. APPROVAL OF MEETING MINUTES

The meeting minutes from the February 13, 2018 Austin Integrated Water Resource Planning Community Task Force regular meeting were approved on Member Ross's motion and Member Walker's second on an 8-0-0-3 vote with Member Richards, Member Dawson and Member Dwight absent.

4. STAFF BRIEFINGS, PRESENTATIONS, AND/OR REPORTS

- a. Presentation on Draft Plan Recommendations was provided by Marisa Flores-Gonzalez, Austin Water and Dan Rodrigo, CDM Smith. This presentation was followed by Task Force discussion and input, followed by questions and answers.

5. SUBCOMMITTEE REPORTS

None

6. VOTING ITEMS FROM TASK FORCE

None

7. FUTURE AGENDA ITEMS

None

Chair Leurig adjourned the meeting at 6:35 pm.

PRESENTATION

Water Forward Task Force Meeting

April 3, 2018



Agenda

- Schedule Through End Of Plan Development Process
- Presentation of Revised Draft Plan Recommendations
 - Task Force Questions, Discussion, and Input

Schedule Through End Of Plan Development Process

Schedule

Date	Event	
Apr. 3rd	Task Force Meeting	Presentation of and TF input on revised draft plan recommendations
May 1st	Task Force Meeting	High level walk through of draft plan report Vote on TF Meeting Dates post-June
Jun. 5th	Task Force Meeting	TF input on draft plan report
Summer 2018	Boards and Commissions Outreach	Presentation of plan recommendations
Aug. 2018	Task Force Meeting	TF review of revised plan report
Sept. 2018	Task Force Meeting	Recommendation for action on final plan
Sept/Oct. 2018	W/WW Commission Meeting	Review and recommendation for action on final plan
Oct/Nov. 2018	City Council Meeting	Action on final plan

Revised Draft Plan Recommendations And Implementation Outlook

Water Forward

AW will continue to monitor AC Condensate Reuse and CII Ordinances that have recently been adopted into code.

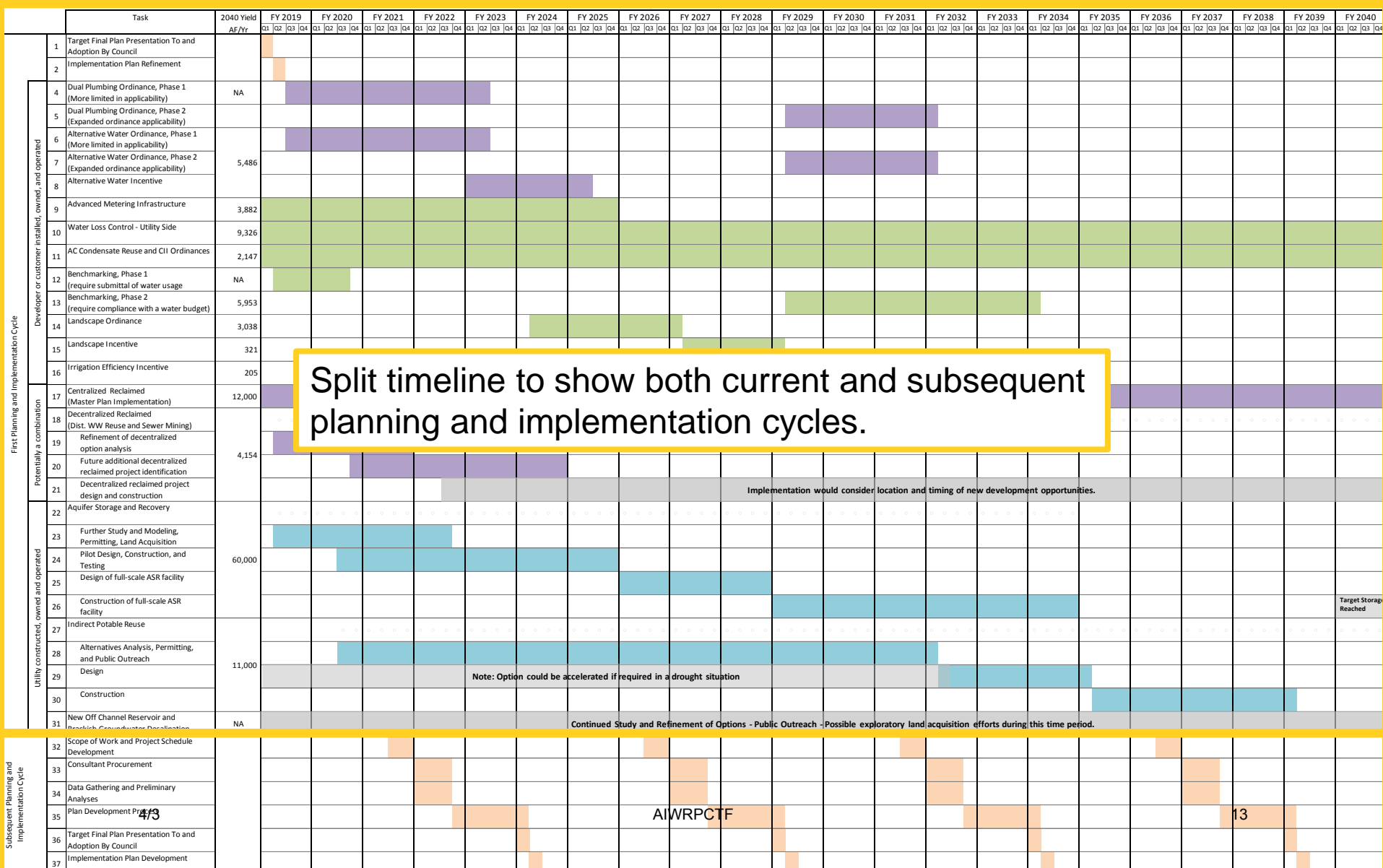
NOTE: All process steps are not included on this informational visual.

REVISÉD DRAFT

Implementation Outlook

[illegible]

What’s Changed?



Split timeline to show both current and subsequent planning and implementation cycles.

Implementation would consider location and timing of new development opportunities.

Note: Option could be accelerated if required in a drought situation

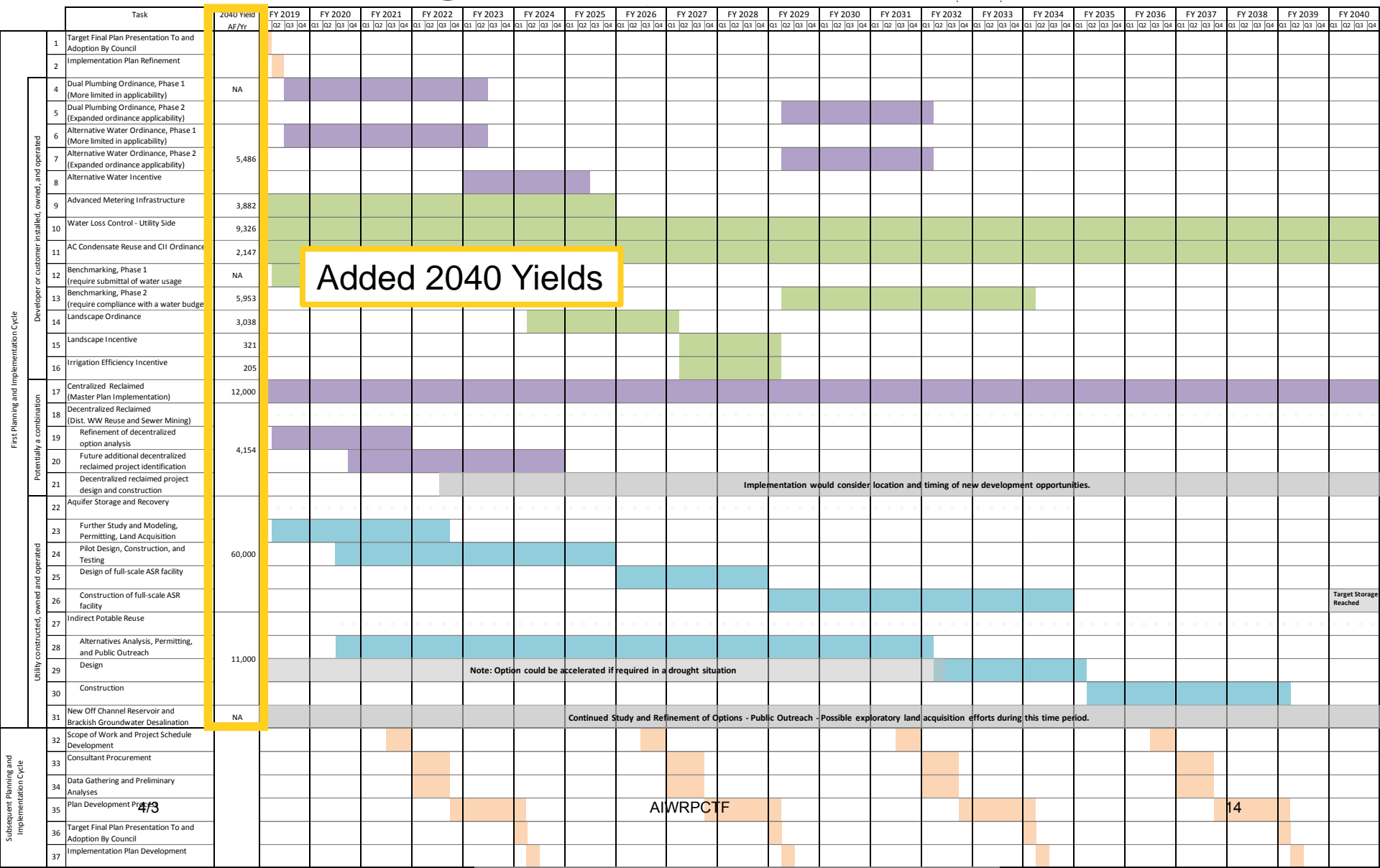
Continued Study and Refinement of Options - Public Outreach - Possible exploratory land acquisition efforts during this time period.

AIWRPCTF

13

Target Storage Reached

What’s Changed?



What’s Changed?

Task		2040 Yield AF/Yr	FY 2019 Q1 Q2 Q3 Q4	FY 2020 Q1 Q2 Q3 Q4	FY 2021 Q1 Q2 Q3 Q4	FY 2022 Q1 Q2 Q3 Q4	FY 2023 Q1 Q2 Q3 Q4	FY 2024 Q1 Q2 Q3 Q4	FY 2025 Q1 Q2 Q3 Q4	FY 2026 Q1 Q2 Q3 Q4	FY 2027 Q1 Q2 Q3 Q4	FY 2028 Q1 Q2 Q3 Q4	FY 2029 Q1 Q2 Q3 Q4	FY 2030 Q1 Q2 Q3 Q4	FY 2031 Q1 Q2 Q3 Q4	FY 2032 Q1 Q2 Q3 Q4	FY 2033 Q1 Q2 Q3 Q4	FY 2034 Q1 Q2 Q3 Q4	FY 2035 Q1 Q2 Q3 Q4	FY 2036 Q1 Q2 Q3 Q4	FY 2037 Q1 Q2 Q3 Q4	FY 2038 Q1 Q2 Q3 Q4	FY 2039 Q1 Q2 Q3 Q4	FY 2040 Q1 Q2 Q3 Q4
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	27 Indirect Potable Reuse																							
	28 Alternatives Analysis, Permitting, and Public Outreach Design	11,000																						
	29 Construction																							
	31 New Off Channel Reservoir and Brackish Groundwater Desalination	NA																						
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	33 Consultant Procurement																							
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Dual Plumbing Ordinance

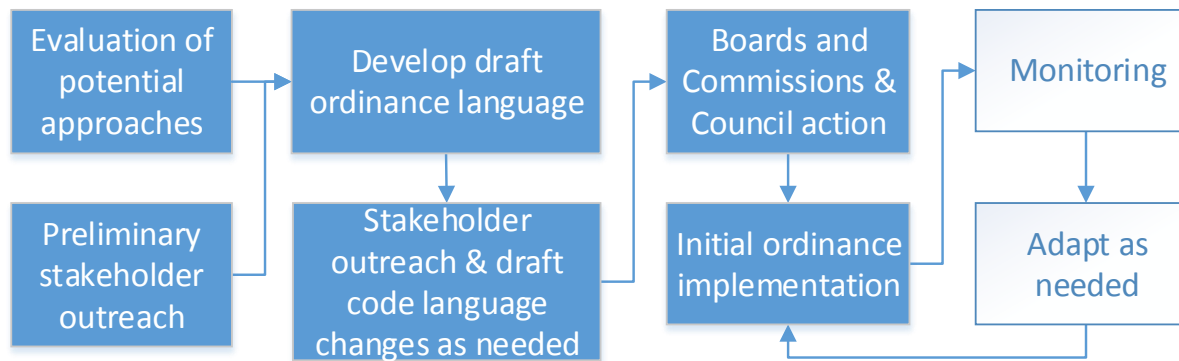
- Split into two phases
 - First phase would be more limited in applicability
 - Second phase would have expanded applicability
 - Specific applicability for both phases TBD
- Duration of initial phase shortened
- Option considered an implementation component necessary to facilitate savings from Alternative Water and Centralized and Decentralized Reclaimed Options.

AIWRPCTF

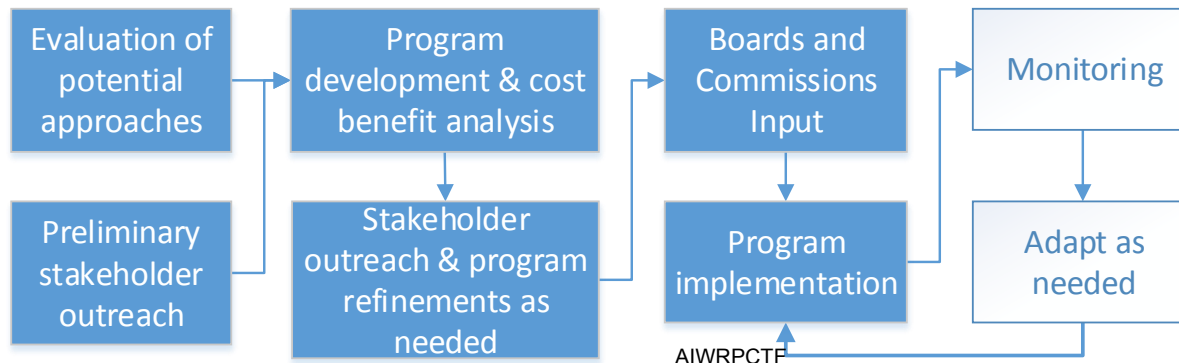
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Typical Ordinance and Incentive Processes

Typical Ordinance Development Process



Typical Incentive Development Process



What’s Changed?

		Task	2040 Yield AF/Yr	FY 2019 Q1 Q2 Q3 Q4	FY 2020 Q1 Q2 Q3 Q4	FY 2021 Q1 Q2 Q3 Q4	FY 2022 Q1 Q2 Q3 Q4	FY 2023 Q1 Q2 Q3 Q4	FY 2024 Q1 Q2 Q3 Q4	FY 2025 Q1 Q2 Q3 Q4	FY 2026 Q1 Q2 Q3 Q4	FY 2027 Q1 Q2 Q3 Q4	FY 2028 Q1 Q2 Q3 Q4	FY 2029 Q1 Q2 Q3 Q4	FY 2030 Q1 Q2 Q3 Q4	FY 2031 Q1 Q2 Q3 Q4	FY 2032 Q1 Q2 Q3 Q4	FY 2033 Q1 Q2 Q3 Q4	FY 2034 Q1 Q2 Q3 Q4	FY 2035 Q1 Q2 Q3 Q4	FY 2036 Q1 Q2 Q3 Q4	FY 2037 Q1 Q2 Q3 Q4	FY 2038 Q1 Q2 Q3 Q4	FY 2039 Q1 Q2 Q3 Q4	FY 2040 Q1 Q2 Q3 Q4
First Planning and Implementation Cycle	Developer or customer installed, owned, and operated	1 Target Final Plan Presentation To and Adoption By Council																							
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Alternative Water Ordinance

- Split into two phases
 - First phase would be more limited in applicability
 - Second phase would have expanded applicability
 - Specific applicability for both phases TBD
- Initial phase now occurs earlier (Implementation target now FY 2023, was post-2030)
- Ordinance now precedes incentive

What’s Changed?

		Task	2040 Yield AF/Yr	FY 2019 Q1 Q2 Q3 Q4	FY 2020 Q1 Q2 Q3 Q4	FY 2021 Q1 Q2 Q3 Q4	FY 2022 Q1 Q2 Q3 Q4	FY 2023 Q1 Q2 Q3 Q4	FY 2024 Q1 Q2 Q3 Q4	FY 2025 Q1 Q2 Q3 Q4	FY 2026 Q1 Q2 Q3 Q4	FY 2027 Q1 Q2 Q3 Q4	FY 2028 Q1 Q2 Q3 Q4	FY 2029 Q1 Q2 Q3 Q4	FY 2030 Q1 Q2 Q3 Q4	FY 2031 Q1 Q2 Q3 Q4	FY 2032 Q1 Q2 Q3 Q4	FY 2033 Q1 Q2 Q3 Q4	FY 2034 Q1 Q2 Q3 Q4	FY 2035 Q1 Q2 Q3 Q4	FY 2036 Q1 Q2 Q3 Q4	FY 2037 Q1 Q2 Q3 Q4	FY 2038 Q1 Q2 Q3 Q4	FY 2039 Q1 Q2 Q3 Q4	FY 2040 Q1 Q2 Q3 Q4
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Alternative Water Incentive

- Enhancement of existing rebate program now occurs later (Implementation target now FY 2025, was pre-2025)
- Duration shortened

Note: Option could be accelerated if required in a drought situation

Continued Study and Refinement of Options - Public Outreach - Possible exploratory land acquisition efforts during this time period.

AIWRPCTF

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Target Storage Reached

What’s Changed?

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Rows added to represent ongoing utility initiatives:

- Advanced Metering Infrastructure
- Water Loss Control – Utility Side
- AC Condensate Reuse and CII Ordinances

Note: Option could be accelerated if required in a drought situation

Continued Study and Refinement of Options - Public Outreach - Possible exploratory land acquisition efforts during this time period.

AIWRPCTF

19

Target Storage Reached

What’s Changed?

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Development Benchmarking

- Phase 1 and 2 now occur earlier (Target now FY 2020 and FY 2034, was post-2025 and 2035)

Note: Option could be accelerated if required in a drought situation

Continued Study and Refinement of Options - Public Outreach - Possible exploratory land acquisition efforts during this time period.

AIWRPCTF

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Target Storage Reached

What’s Changed?

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	36 Target Final Plan Presentation To and Adoption By Council																							
	37 Implementation Plan Development																							

Landscape Ordinance and Incentive

- Enhancement of existing ordinance now precedes enhancement of existing rebate program
- Enhanced ordinance target now FY 2026, was post 2035
- Enhanced ordinance would likely see majority of savings coming from Single Family Residential (SFR) sector as current ordinance covers Commercial and Multi-Family sectors
- Recent market trends have shifted toward native and adaptive plant palettes for SFR (for example: HBA’s Sensible Landscaping Guide)
- Incentive target date remains similar

What’s Changed?

		Task	2040 Yield AF/Yr	FY 2019 Q1 Q2 Q3 Q4	FY 2020 Q1 Q2 Q3 Q4	FY 2021 Q1 Q2 Q3 Q4	FY 2022 Q1 Q2 Q3 Q4	FY 2023 Q1 Q2 Q3 Q4	FY 2024 Q1 Q2 Q3 Q4	FY 2025 Q1 Q2 Q3 Q4	FY 2026 Q1 Q2 Q3 Q4	FY 2027 Q1 Q2 Q3 Q4	FY 2028 Q1 Q2 Q3 Q4	FY 2029 Q1 Q2 Q3 Q4	FY 2030 Q1 Q2 Q3 Q4	FY 2031 Q1 Q2 Q3 Q4	FY 2032 Q1 Q2 Q3 Q4	FY 2033 Q1 Q2 Q3 Q4	FY 2034 Q1 Q2 Q3 Q4	FY 2035 Q1 Q2 Q3 Q4	FY 2036 Q1 Q2 Q3 Q4	FY 2037 Q1 Q2 Q3 Q4	FY 2038 Q1 Q2 Q3 Q4	FY 2039 Q1 Q2 Q3 Q4	FY 2040 Q1 Q2 Q3 Q4
Developer or customer installed, owned, and operated	1	Target Final Plan Presentation To and Adoption By Council																							
	2	Implementation Plan Refinement																							
	4	Dual Plumbing Ordinance, Phase 1 (More limited in applicability)	NA																						
	5	Dual Plumbing Ordinance, Phase 2 (Expanded ordinance applicability)																							
	6	Alternative Water Ordinance, Phase 1 (More limited in applicability)																							
	7	Alternative Water Ordinance, Phase 2 (Expanded ordinance applicability)	5,486																						
	8	Alternative Water Incentive																							
	9	Advanced Metering Infrastructure	3,882																						
	10	Water Loss Control - Utility Side	9,326																						
	11	AC Condensate Reuse and CII Ordinances	2,147																						
	12	Benchmarking, Phase 1 (require submittal of water usage)	NA																						
	13	Benchmarking, Phase 2 (require compliance with a water budget)	5,953																						
	14	Landscape Ordinance	3,038																						
	15	Landscape Incentive	321																						
Potentially a combination	16	Irrigation Efficiency Incentive	205																						
	17	Decentralized Reclaimed (Master Plan Implementation)	12,000																						
	18	Decentralized Reclaimed (Dist. WW Reuse and Sewer Mining)																							
	19	Refinement of decentralized option analysis	4,154																						
	20	Future additional decentralized reclaimed project identification																							
	21	Decentralized reclaimed project design and construction																							
	22	Aquifer Storage and Recovery																							
	23	Further Study and Modeling, Permitting, Land Acquisition																							
	24	Pilot Design, Construction, and Testing	60,000																						
	25	Design of full-scale ASR facility																							
	26	Construction of full-scale ASR facility																							
	27	Indirect Potable Reuse																							
	28	Alternatives Analysis, Permitting, and Public Outreach Design	11,000																						
	29	Construction																							
Utility constructed, owned and operated	30	Construction																							
	31	New Off Channel Reservoir and Brackish Groundwater Desalination	NA																						
	32	Scope of Work and Project Schedule Development																							
	33	Consultant Procurement																							
	34	Data Gathering and Preliminary Analyses																							
	35	Plan Development Phase 4/3																							
	36	Target Final Plan Presentation To and Adoption By Council																							
	37	Implementation Plan Development																							

Irrigation Efficiency Incentive

- Enhancement of existing rebate program now occurs earlier (Target now FY 2029, was post-2030)

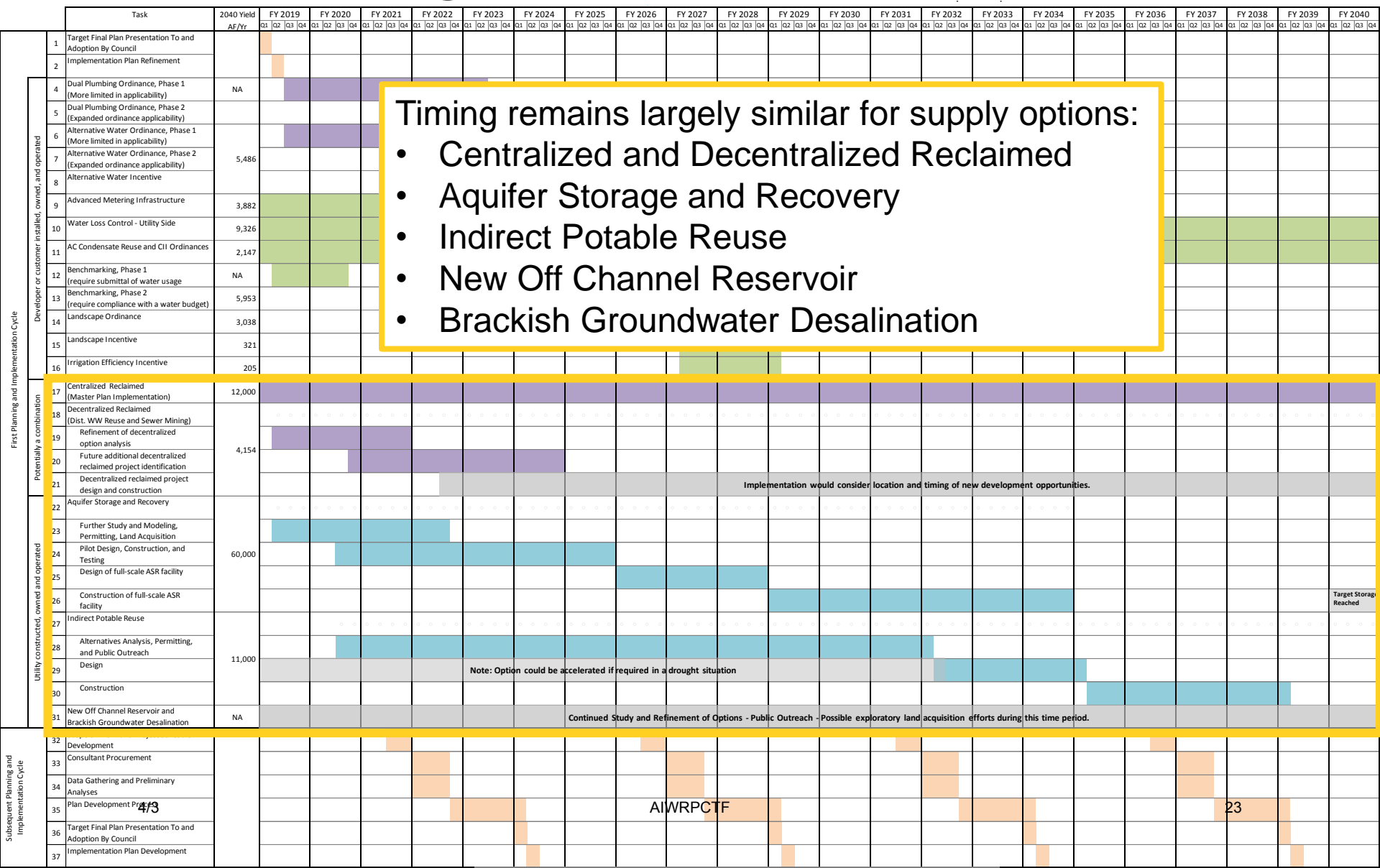
Note: Option could be accelerated if required in a drought situation

Continued Study and Refinement of Options - Public Outreach - Possible exploratory land acquisition efforts during this time period.

AIWRPCTF

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What’s Changed?



Discussion Goals

- Input on revised plan recommendations
 - Are the recommendations clear?
 - Are you comfortable with the recommendations?
- Input on implementation outlook
 - Is the phasing of options clear?
 - Is the rationale behind the phasing understandable?
 - Are you comfortable with the implementation timeline?
- Parking lot for other/future items

BACKUP MATERIALS

Draft Outline of Plan Recommendations

Hybrid Portfolio Planning Context

- Plan development targeted at being adaptable for a variety of potential futures as a way to deal with climate, drought, and other uncertainties
- Planning context for identified needs and strategies to meet the needs
 - Focus was on Scenario B – Period of Record (Observed Hydrology) adjusted to reflect the potential future effects of climate change
 - Hybrid Portfolios were developed to meet identified Type 1, 2, and 3 needs

Core Colorado River Supplies

- Colorado River supply will continue to be Austin's core supply in the future
- Action steps to protect and enhance this supply include:
 - Continued participation in the Lower Colorado River Authority/City of Austin Water Partnership
 - Continue to engage on potential water supply development in the basin, which may include regional partnerships as a way to implement supply or demand management options
 - Continued communication and information sharing with other entities in the basin
 - Continued participation in LCRA's Water Management Plan update processes
 - Continued participation in the Texas Water Development Board-administered Regional Water Planning process
 - Broaden our understanding of basin-wide issues, including both upstream and downstream issues
 - Share information and work with others to study potential future climate change impacts

Implementation of Best Management Practices

- Continue to implement best management practices and options identified as implementation components
 - Best management practice options
 - Require or incentivize government-recognized energy and water efficiency-labeled residential and commercial fixtures
 - Included in baseline assumptions in portfolios
 - Incentivize or require toilet, urinal, and bathroom faucet aerator efficiencies
 - Included in baseline assumptions in portfolios
 - Lake Austin Operations
 - Implementation during drought periods
 - Options identified as implementation components
 - Water rates and fees to promote water use efficiency while maintaining affordability
 - Customer education enhancements
 - Use of social media programs and web-based content to promote conservation

Hybrid 1 Portfolio Makeup for Each Planning Horizon

Portfolio Makeup		Average Drought	2040 Yield Target	2070 Yield Target	2115 Yield Target
Future Additional Portfolio Elements					
D1	AMI	Both	3,882	5,766	9,371
D2	Water Loss Control	Both	9,326	10,918	13,064
D3	CII Ordinances	Both	1,063	1,063	1,063
D4	Benchmarking	Both	5,953	11,670	25,228
D5	Landscape Ordinance	Both	3,038	7,428	15,050
D6	Landscape Incentive	Both	321	633	929
D7	Irrigation Incentive	Both	205	427	394
D8	Lot Scale Stormwater Harvesting	Both	329	869	2,275
D9	Lot Scale Rainwater Harvesting	Both	1,550	4,032	9,251
D10	Lot Scale Gray Water Harvesting	Both	2,126	5,617	12,667
D11	Lot Scale Wastewater Reuse	Both	1,323	3,672	7,875
D12	AC Condensate Reuse	Both	1,084	2,711	5,150
S1	Aquifer Storage and Recovery	Drought	60,000	60,000	90,000
S2	Brackish Groundwater Desal	Both	-	5,000	16,000
S3	Direct Non-Potable Reuse	Both	12,000	25,000	54,600
S4	Direct Potable Reuse	Drought	-	-	-
S5	Indirect Potable Reuse	Drought	11,000	20,000	20,000
S6	LCRA Additional Supply	Both	-	-	-
S7	New Off Channel Reservoir	Both	-	25,000	25,000
S8a	Seawater Desal (Import Option)	Both	-	-	-
S8b	Conventional Groundwater (Import Option)	Both	-	-	-
S9	Community Scale Distributed Wastewater Reuse	Both	3,154	14,467	30,049
S10	Community Scale Sewer Mining	Both	1,000	2,211	5,284
S11	Community Scale Stormwater	Both	158	236	504
S12	Community Scale Rainwater	Both	-	-	-
	Remaining Regional Supply	Both	N/A	N/A	N/A
Existing Portfolio Elements					
	DCP Implementation	Drought	N/A	N/A	N/A
	COA Run of River	Both			
	LCRA Firm Supply	Both			
	Remaining Regional Supply	Both			

Adaptive Management Plan - High Level Implementation Steps

Several options will need to be implemented in the near term to ramp up over time to meet future planning horizon goals. This will include demand management, decentralized, and centralized reclaimed system options.

Demand Management Options

- Dual Plumbing Ordinance
 - This option will include development of an ordinance to require dual plumbing in new development (applicability to be determined) pending Boards and Commissions and Council action. Implementation will include stakeholder and Boards and Commissions outreach and input.
 - Option considered an implementation component necessary to facilitate savings from Alternative Water and Centralized and Decentralized Reclaimed Options.
 - First phase will include development of an ordinance that would be more limited in applicability potentially targeting a certain sector, land use, site characteristic, or geographic area. Specific applicability to be determined as part of subsequent ordinance development and stakeholder outreach processes.
 - Second phase would expand ordinance applicability. Specific applicability to be determined as part of subsequent ordinance development and stakeholder outreach processes.
- Alternative Water Ordinances
 - This option includes the development of ordinances requiring alternative water use, to include lot-scale rainwater harvesting, lot and community scale stormwater harvesting, lot scale blackwater reuse, lot scale graywater harvesting, centralized reclaimed water or decentralized reclaimed water (applicability to be determined) pending Boards and Commissions and Council action. Implementation will include stakeholder and Boards and Commissions outreach and input.
 - First phase will include development of an ordinance that would be more limited in applicability potentially targeting a certain sector, land use, site characteristic, or geographic area. Specific applicability to be determined as part of subsequent ordinance development and stakeholder outreach processes.
 - Second phase would expand ordinance applicability. Specific applicability to be determined as part of subsequent ordinance development and stakeholder outreach processes.
 - Later steps will include development of an alternative water ordinance, which will include stakeholder outreach and Boards and Commissions and Council action
- Alternative Water Incentives
 - This option includes enhancement of existing incentive programs to facilitate alternative water use, to include lot-scale rainwater harvesting, lot and community scale stormwater harvesting, lot scale blackwater reuse, and lot scale graywater harvesting
 - Implementation will target existing development
 - Incentive program development will include interdepartmental, stakeholder, and Boards and Commissions outreach and input
- Advanced Metering Infrastructure and Water Loss Control
 - AW will continue implementation of these utility initiatives
- CII Ordinances and AC Condensate Reuse Ordinance
 - Options recently adopted into code
 - AW will continue to monitor these options
- Development-focused Water Use Benchmarking and Budgeting
 - First phase – Information submittal and voluntary conservation program participation
 - Initially this option will require submittal of water use estimates for new development. As a first step, potential approaches to implement this requirement will be evaluated. If

the best approach will require an ordinance, the process will include stakeholder outreach and Boards and Commissions and Council action

- As part of this program, City staff will provide potential water use efficiency and alternative water recommendations and information on available incentive and rebate programs. This information will tie into the development of databases to be used to develop benchmarks for efficient water usage for various development types. Implementation of the measure will look for ways to tie into the Service Extension Request (SER) and Austin Energy Green Building (AEGB) programs as well as AMI customer portals for residential and commercial.
 - Second phase – Requirement that new development meet established water budget
 - Prior to 2040, this option will be expanded to include requirement of water use estimate submittals for new development concurrent with preliminary plan submittal to be reviewed by City staff and a requirement that new development meet a benchmark water budget (compliance mechanism to be determined).
- Landscape Transformation Ordinance
 - This option includes development of a landscape transformation ordinance, which will include stakeholder outreach and Boards and Commissions and Council action
 - Implementation of a landscape transformation ordinance could include implementing turf grass area, irrigated area, and/or irrigation area limitations
 - Enhanced ordinance would likely see majority of savings coming from Single Family Residential (SFR) sector as current ordinance covers Commercial and Multi-Family sectors
 - Recent market trends have shifted toward native and adaptive plant palettes for SFR (for example: Home Builders Association of Greater Austin Sensible Landscaping Guide)
- Landscape Transformation Incentive
 - Implementation of an incentive could include increasing existing WaterWise landscape rebates for single family residential and multifamily residential and implementing a new WaterWise landscape rebate for commercial properties beyond City of Austin Land Development Code requirements
 - Incentive program development will include stakeholder and Boards and Commissions outreach and input and will target existing development
- Irrigation Efficiency Incentive
 - Implementation of an incentive could include expansion of current irrigation rebate programs to include irrigation system controllers that make flow data accessible and are capable of responding to leaks and high flow situations
 - Incentive program development will include stakeholder and Boards and Commissions outreach and input and will target existing development

Supply Options

- Centralized and Decentralized Reclaimed Water
 - This includes the Centralized Reclaimed Water (Purple Pipe) System and decentralized reclaimed options: community scale distributed wastewater reuse and community scale sewer mining.
 - AW will continue implementation of the centralized reclaimed water (purple pipe) system master plan with consideration of potential expansion
 - Initial steps for decentralized reclaimed options will include additional refinement of geospatial analysis and potential project identification. Later steps will include design and construction of decentralized reclaimed projects.
 - Implementation of both centralized and decentralized reclaimed options will be informed by and will coordinate with one another.
- Aquifer Storage and Recovery (Carrizo-Wilcox)

- Initial steps will include further study for pilot and full project, further modelling for operational considerations, land acquisition, legal and permitting considerations, and piloting
- Later steps will include evaluation of pilot, potentially leading to preliminary design and construction of a full-scale ASR facility
- To date, only preliminary costs for an ASR pilot are include in the AW capital improvements plan (CIP). CIP costs and operations and maintenance costs will need to be added in future budgets.
- Indirect Potable Reuse
 - Initial steps will build on previously performed feasibility studies for IPR and will include further study of potential option configuration, further evaluation of Lady Bird Lake inflows, and infrastructure requirements, and permitting and operational considerations
- New Off Channel Reservoir
 - Initial steps will include further study of infrastructure requirements for this option
 - Later steps will include permitting, land acquisition, design, and construction of facilities
- Brackish Groundwater Desalination
 - Initial steps will include location of a potential aquifer and potentially water quality testing
 - Later steps will include permitting, land acquisition, design, and construction of facilities
- Other options that progressed through screening but were not included in Hybrid 1 could be considered at a future point as the plan is reevaluated on a five-year cycle
 - Options include community-scale rainwater harvesting, direct potable reuse, additional LCRA supply, import options like seawater desal and conventional groundwater

Future Steps

- Post plan adoption, convene the Water Forward Task Force on a quarterly basis to support ongoing plan implementation efforts
- Determine funding and resource requirements to implement plan strategies and programs
- Update Integrated Water Resource Plan, plan recommendations, and adaptive management plan on a five-year cycle

Metrics to Monitor Conditions and Implementation Success

- Demands
 - How are water demands tracking with plan projections?
- Supplies
 - Ratio of supply capacity to demand
- Project implementation tracking
 - Progression of projects and programs compared to estimated project milestones
 - Estimated savings from implemented demand management options
 - Estimated yield from implemented supply options

REVISÉD DRAFT

04/03/2018

Water Forward Implementation Outlook

AW will continue implementation of Advanced Metering Infrastructure and Water Loss Control utility initiatives.
AW will continue to monitor AC Condensate Reuse and CII Ordinances that have recently been adopted into code.
NOTE: All process steps are not included on this informational visual.

[illegible]