



PARSONS

Feasibility Study for Regional Industrial Wastewater Treatment and Reuse Facility, Mont Belvieu, Texas

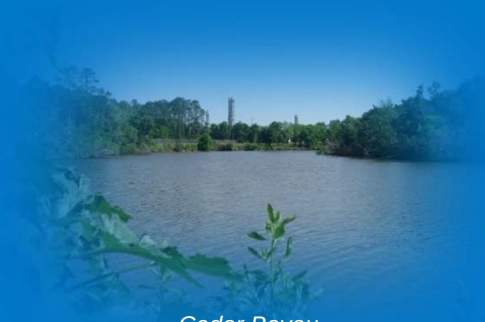
Public Meeting #3

Date: Wednesday, November 9, 2016

Agenda

- Introductions
- Feasibility Study Report Summary
- Cost Estimate
- Path Forward

Feasibility Study Report Sections



Cedar Bayou

FS Report Outline

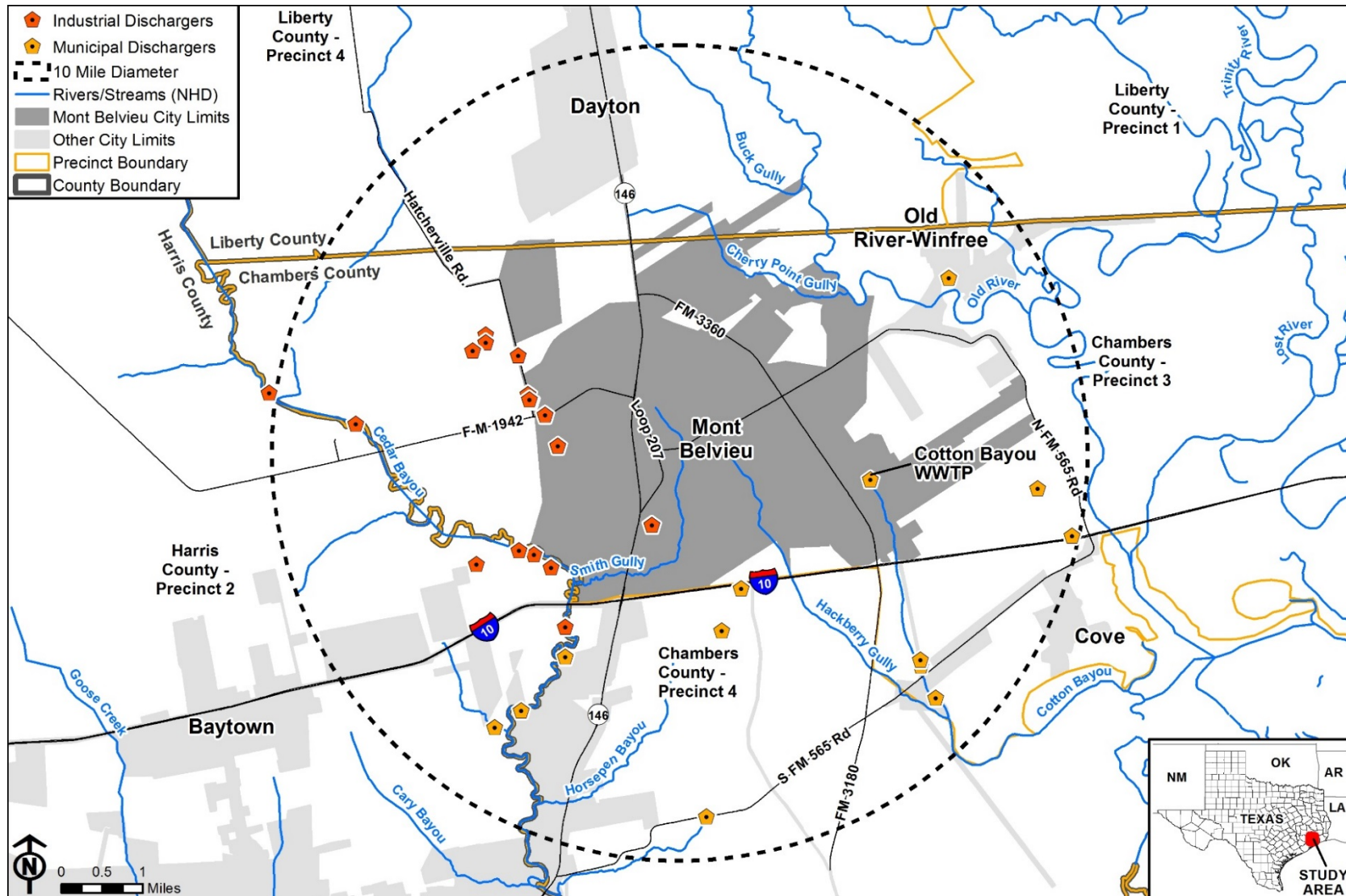
- Executive Summary
- Section 1: Introduction
- Section 2: Regional Conditions
- Section 3: Wastewater Treatment Facilities and Requirements
- Section 4: Basis of Design
- References
- Appendices

Report Posted at: <http://www.gcwda.com/news-events/grant-reports/>

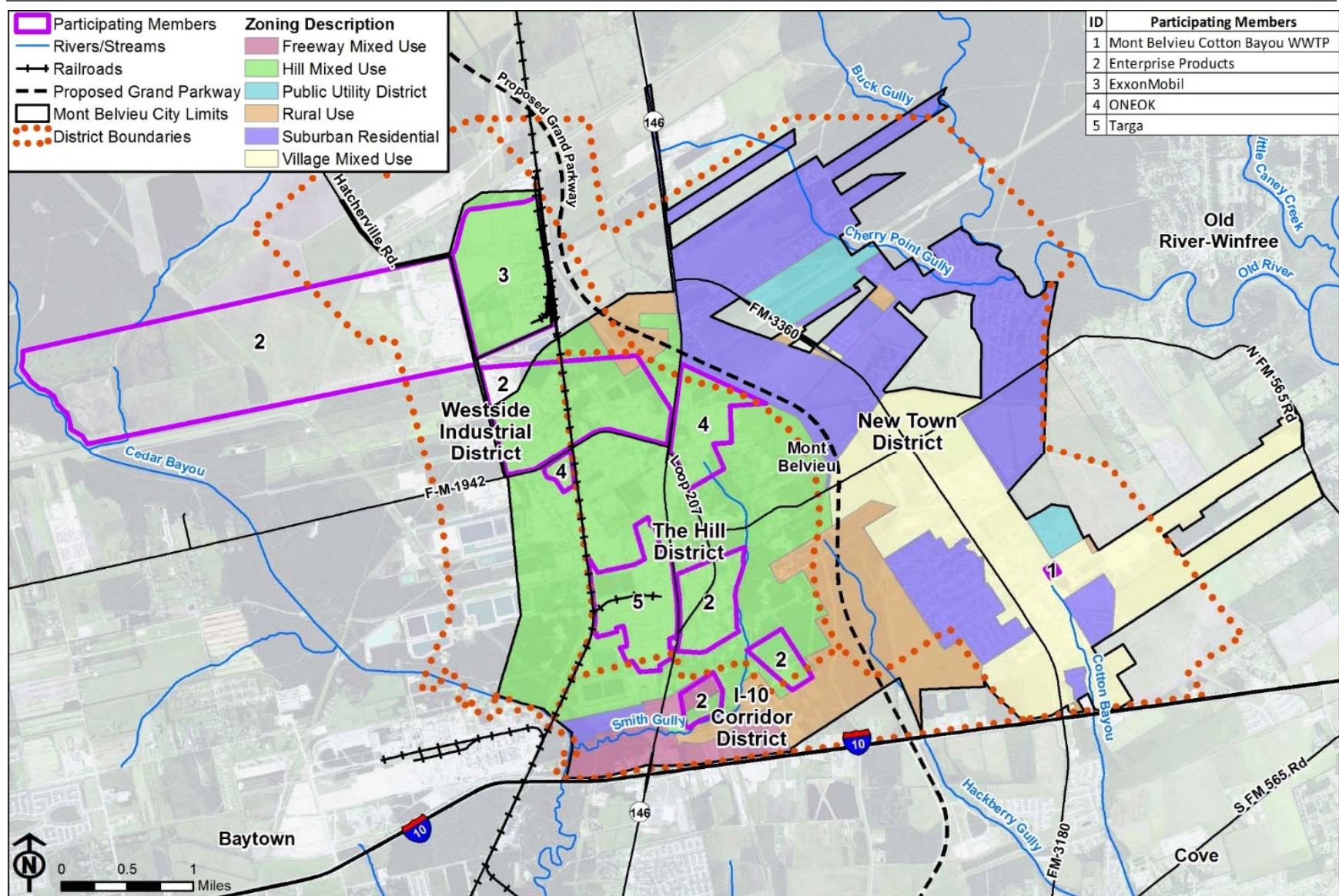
Project Team (Section 1)



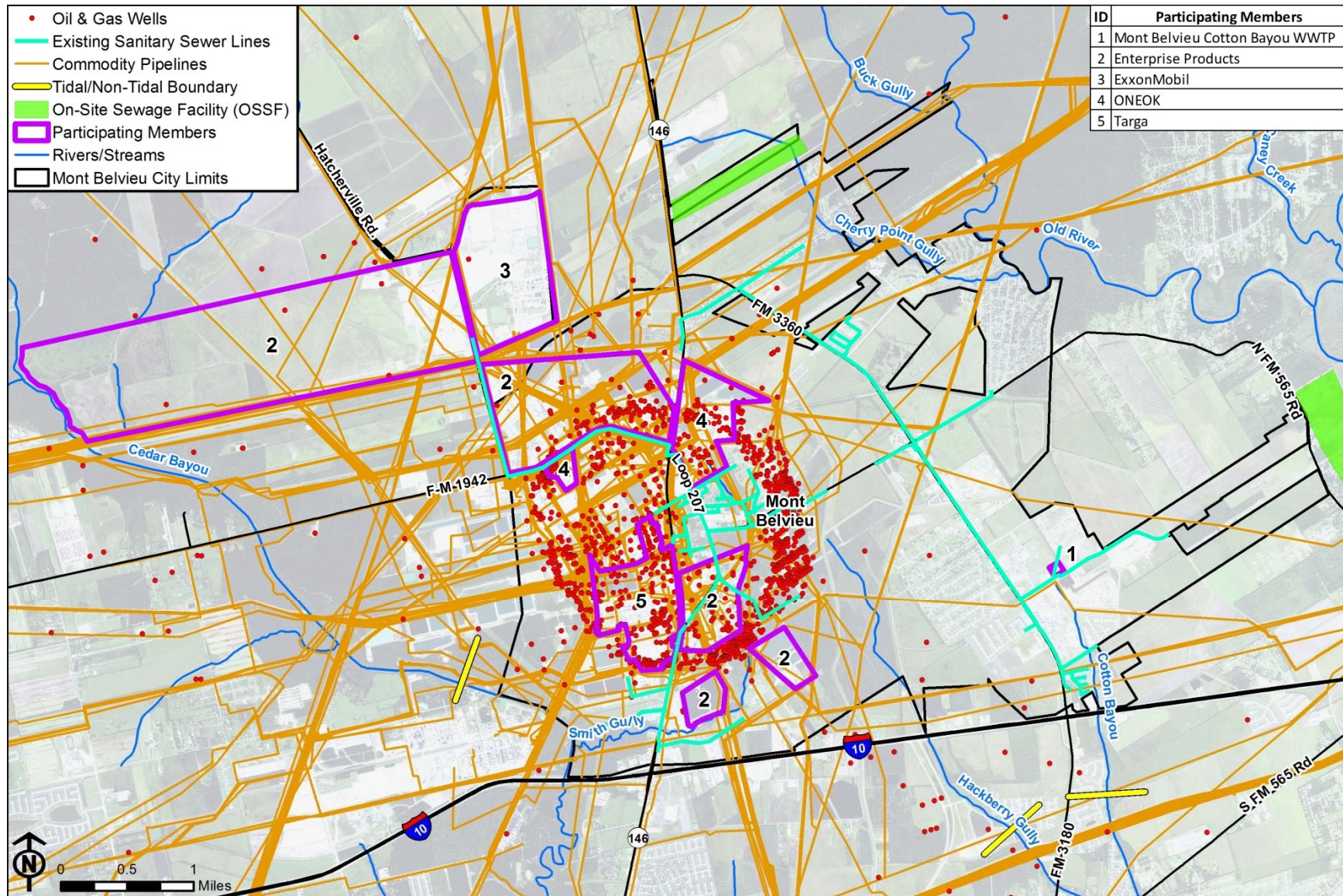
Project Study Area (Section 1)



Regional Conditions (Section 2)

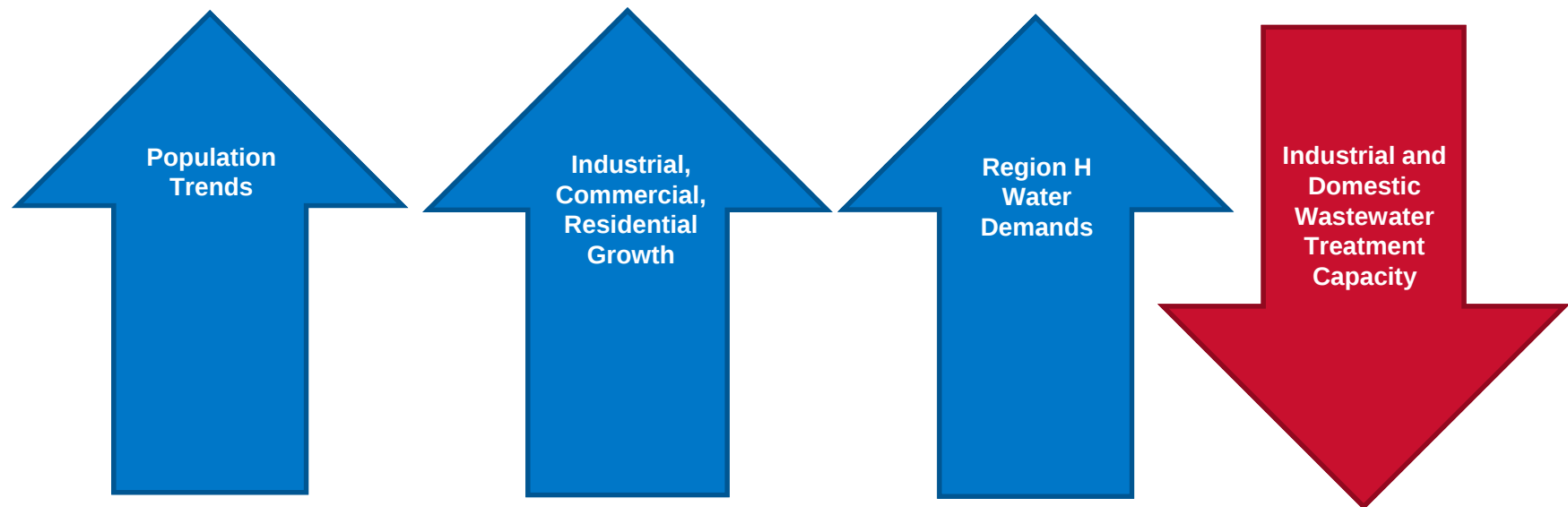


Regional Conditions (Section 2)



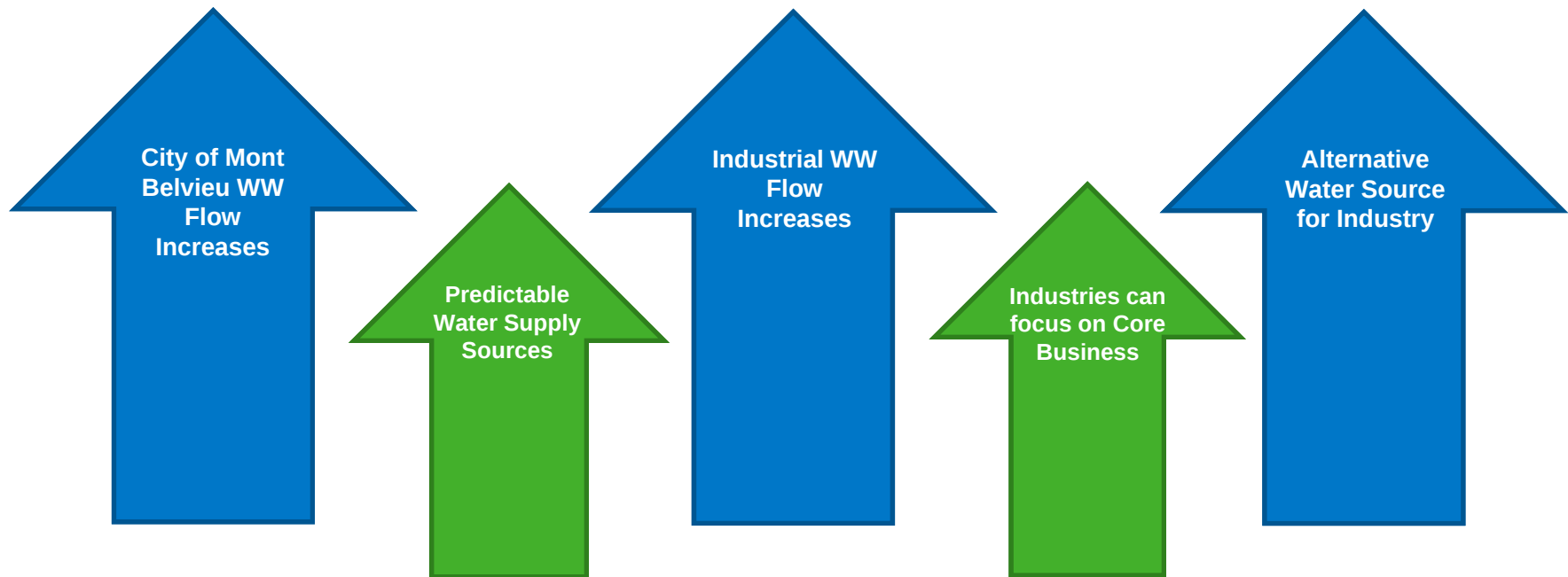
Regional Conditions (Section 2)

- Regionalization Drivers



Infrastructure Needs & Requirements (Section 3)

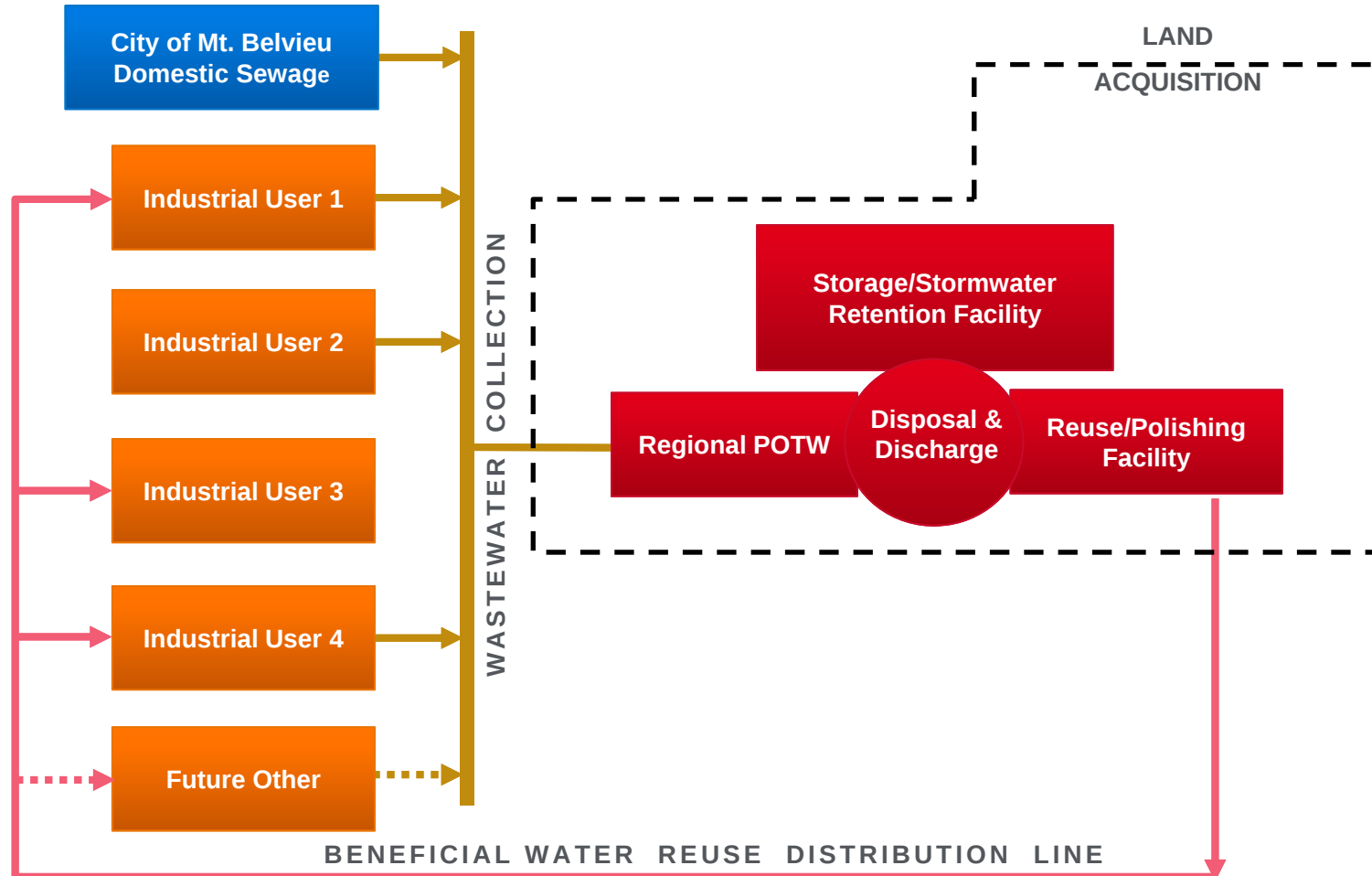
- Key Drivers among Participating Members



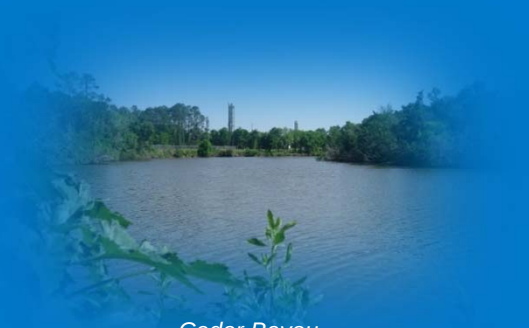
Possible Site Selection Evaluation Criteria (Section 2)

Hypothetical IWWTR Plant Site	A	B	C	D	E
Environmental Factors					
Topography	Yellow	Yellow	Green	Green	Yellow
Avoidance of salt dome	Green	Green	Green	Green	Red
Avoidance of the 100-year flood plain	Green	Green	Red	Green	Yellow
Proximity of tidal receiving waters to locate treated wastewater outfall	Green	Yellow	Green	Green	Yellow
Anthropogenic Factors					
Parcel size	Green	Green	Red	Green	Green
High priority to sites west of S.H. 146	Green	Green	Green	Red	Green
Avoidance of existing subsurface and surface utilities	Green	Yellow	Green	Yellow	Red
Collection and distribution line alignment that minimizes impact to residential land owners	Green	Green	Yellow	Yellow	Yellow
Proximity to each parcel of participating members	Green	Green	Yellow	Yellow	Green
Roadway access	Green	Green	Green	Yellow	Green
Availability of easements	Green	Red	Green	Yellow	Red
Land parcels within city limits or ETJ of Mont Belvieu	Green	Red	Green	Green	Green

Regional Industrial Wastewater Treatment and Reuse Facility (Section 3)



Basis of Design



Cedar Bayou

Basis of Design for WW Treatment Volume & Water Reuse Demand (Section 4)

Dischargers Providing Wastewater Influent	Reuse Water Purchasers	Wastewater Quantities Discharged to Proposed IWWTR Facility (MGD)					Requested Reuse Water Quantity (MGD)		
		2016 Estimated Influent Flow		Future Flow Estimate (including Storm Water)					
		Dry Weather Flow	Max. Avg. Daily Flow	2025	2050	UBO 2075	2025	2050	UBO 2075
5	4	5.6	17.9	19.2	23.7	29.0	11.6	13.8	18.0

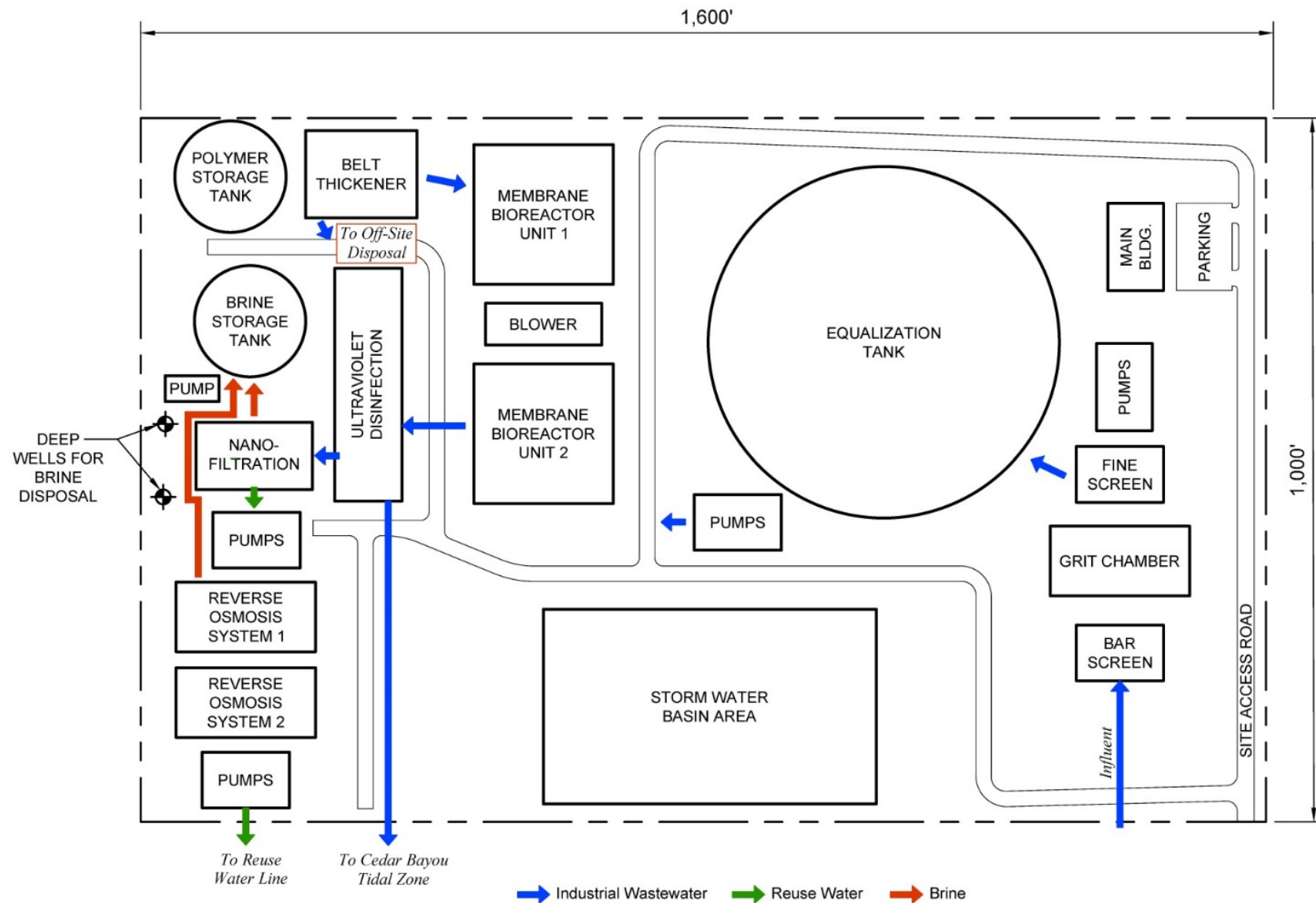
- Basis of design 5 MGD of non-potable reuse water
- Future expansion is a function of wastewater influent flow rates and customer demand

Ambient Water Quality from CWA (Section 4)

Parameter	Average Concentration
Chloride	20
Sulfate	10
TDS	110
Total Hardness	54

- Preliminary targets for desired quality of reuse water
- TDS and hardness drive RO treatment process and O&M

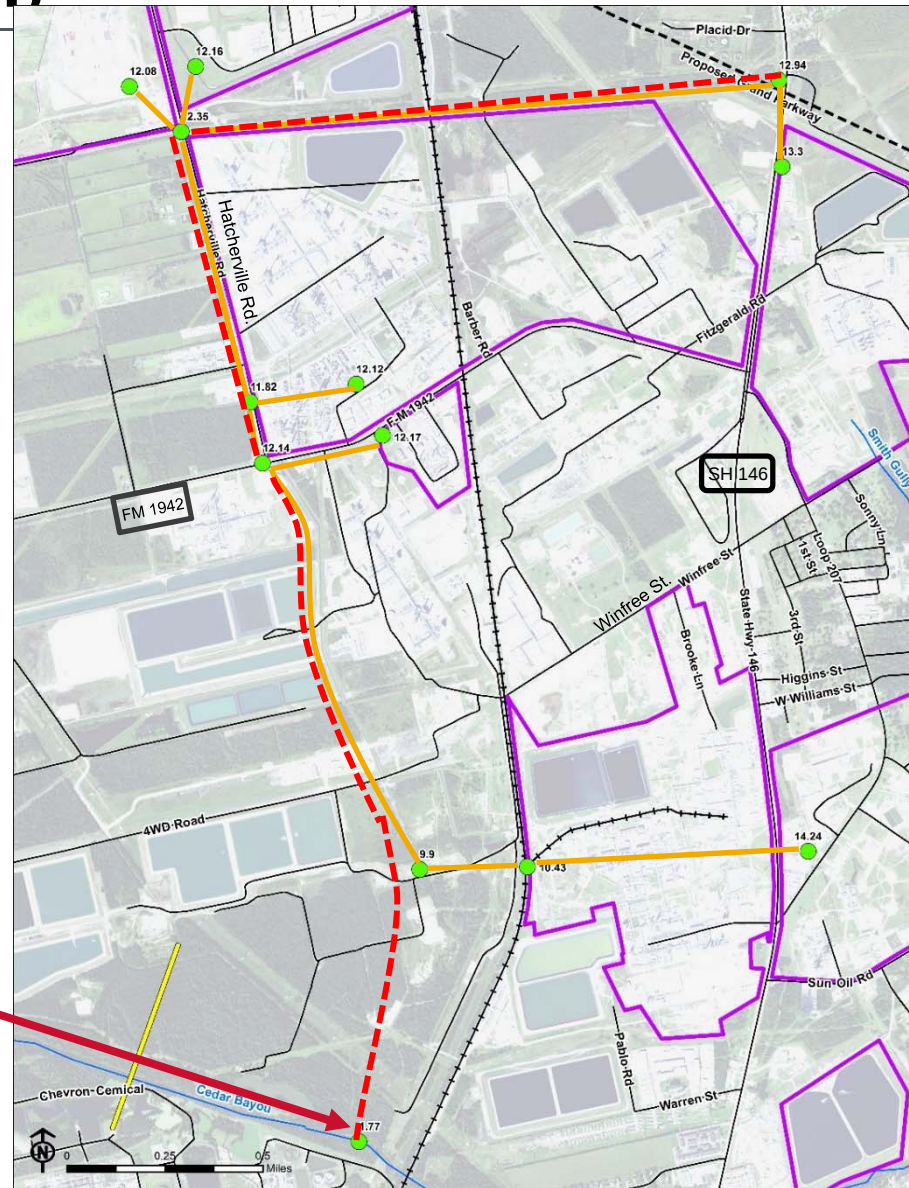
Schematic Site Layout - ~ 40 acres (Section 4)



Basis of Design: Conveyance, Distribution and Effluent Discharge Lines (Section 4)

- Force Main
 - Participating members - pump to force main
 - Wastewater conveyance system – ~5.2 miles
- Reuse water - pumped to participating members
- Wastewater effluent outfall pipeline – ~4.2 miles

Recommended WW Outfall



ROM Cost Estimate



Cedar Bayou

Class 4 Cost Estimate for Regional IWWTR System (Section 4)

- Wastewater Treatment Cost (-30% to +50%)
 - Wastewater conveyance system
 - Not included – OSSF and City of Mont Belvieu sewer system
 - Outfall line to the Cedar Bayou tidal zone
 - Site improvements
 - Wastewater treatment units
 - Land purchase
 - Engineering, Construction and project management
 - Contingency
- Total Estimated Cost ~ Approx. \$60,600,000

Class 4 Cost Estimate for Regional IWWTR System (Section 4)

- Water Reuse Treatment and Distribution Cost (-30% to +50%)
 - Reuse water distribution line
 - Reuse water treatment units
 - Site improvements
 - Land purchase
 - Engineering, Construction and project management
 - Contingency
- Total Estimated Cost ~ Approx. \$21,300,000

Class 4 Cost Estimate for Regional IWWTR System (Section 4)

Item Description	Estimated Cost
Wastewater Treatment Cost	\$60,600,000
Reuse Water System	\$21,300,000
Total Estimated Cost	\$81,900,000
Annual Operation and Maintenance Cost	\$5,000,000

Path Forward



Cedar Bayou

Preliminary Project Implementation Schedule

Activity Name	Duration (days)	Year 1												Year 2											
		A	B	C	D	E	F	G	H	I	J	K	L	A	B	C	D	E	F	G	H	I	J	K	L
Planning and Conceptual Design	150																								
Property and ROW Acquisition	180																								
Front End Engineering and Design (FEED)	240																								
Permits	360																								
Secure Funding	150																								
Detailed Design	300																								
Bidding and Procurement	270																								
Construction and Commissioning	360																								

Preliminary Project Implementation Schedule

Activity Name	Duration (days)	Year 3												Year 4											
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Lori Traweek
GCA
281-226-1130
ltraweek@gcwda.com

Keith Ganze, PE
713-871-7163
keith.ganze@parsons.com

Mel Vargas
512-719-6821
mel.vargas@parsons.com

www.gcwda.com
www.parsons.com

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