A.R. Davis Treated Water Discharge and Power Distribution Upgrade

Water and Wastewater Commission
September 9, 2015

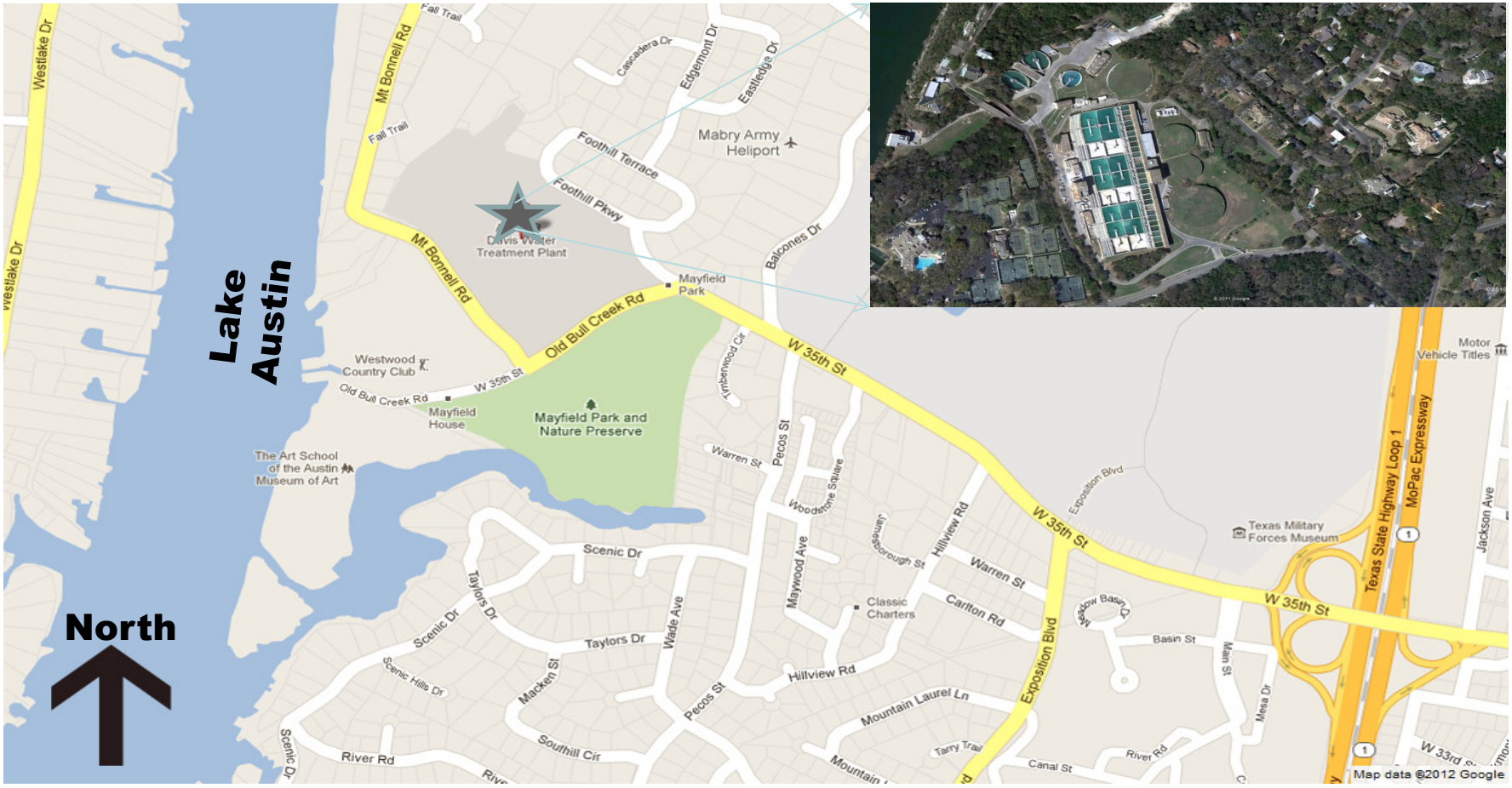
Facility Engineering – Water
Project Sponsor : Christopher Wolter

Austin WATER

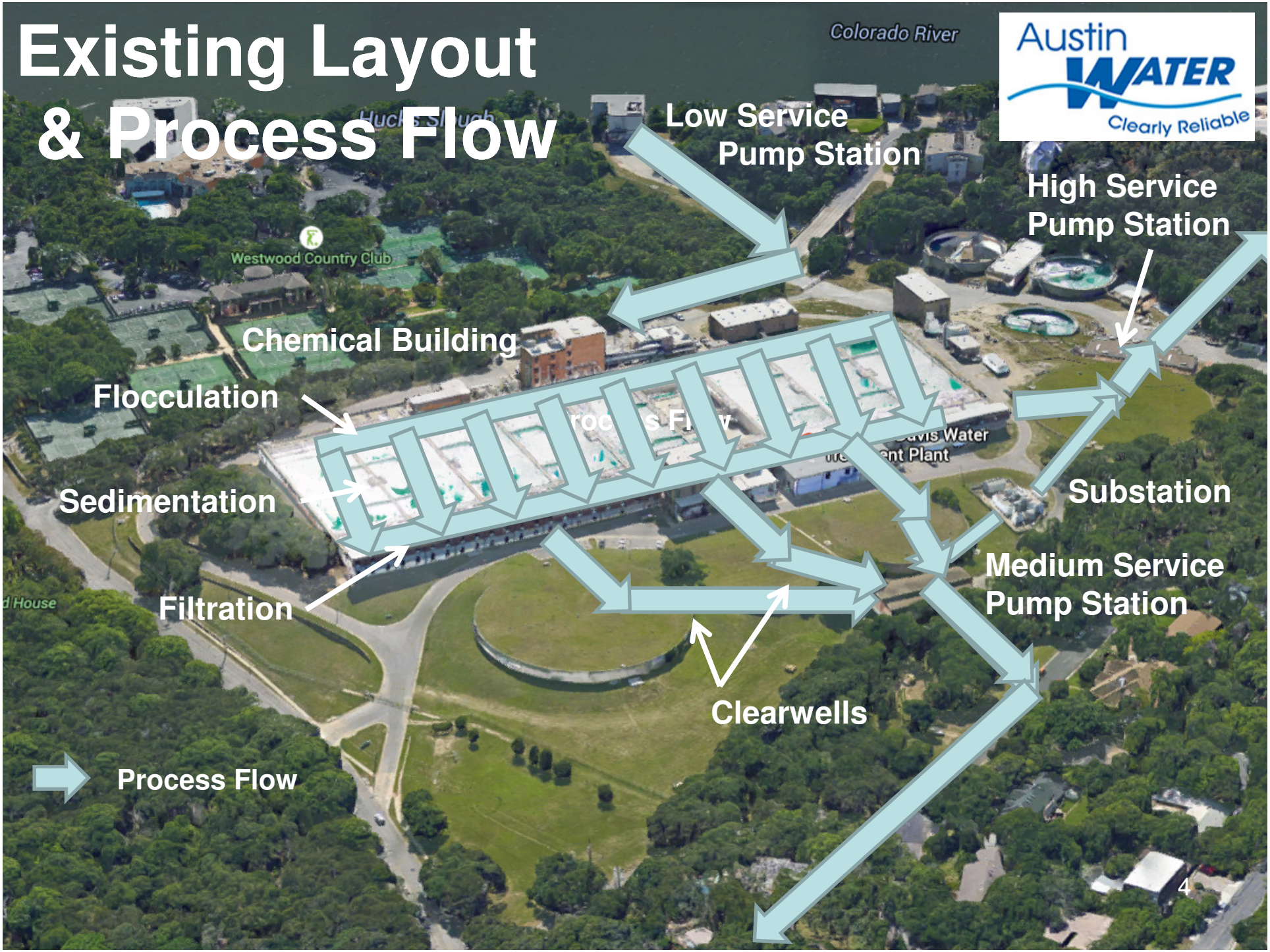
Presentation Topics

- Location Map
- Existing Layout and Process Flow
- Asset Management Methodology
- Proposed Improvements Layout & Overview
- Austin Energy Power Supply Project Overview
- Neighborhood Coordination
- Schedule & Cost
- Questions

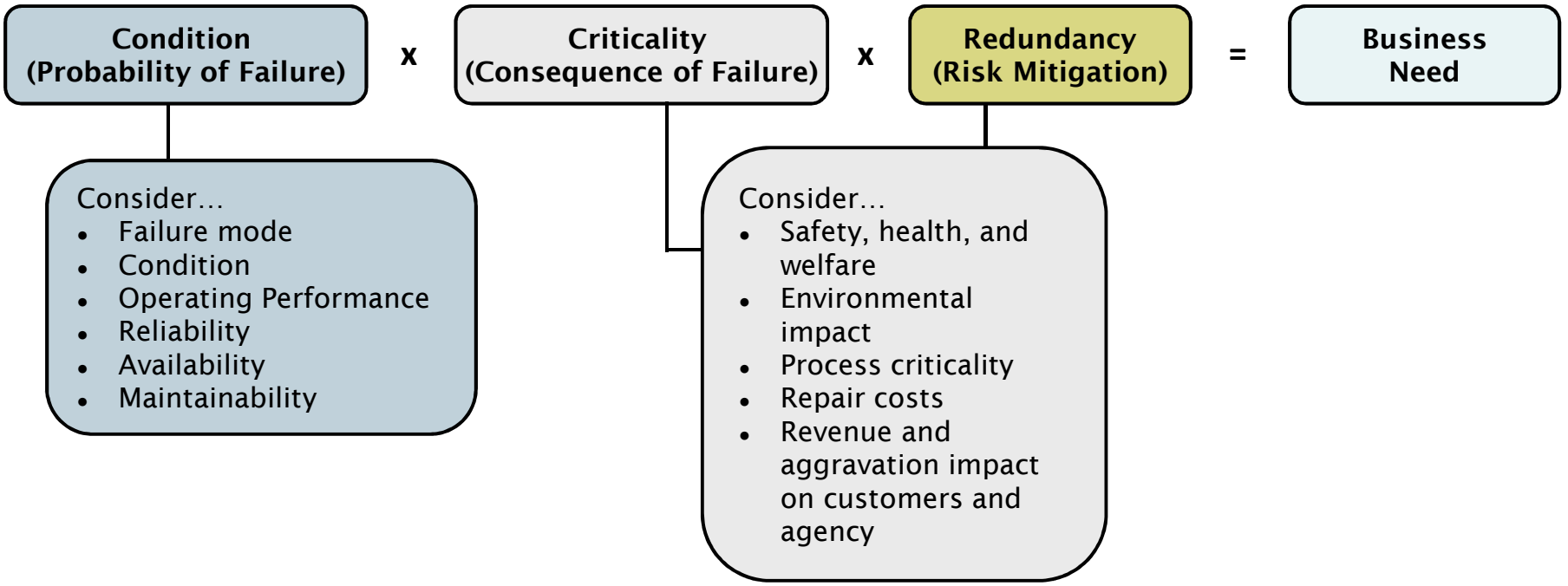
Davis WTP Location Map



Existing Layout & Process Flow



Austin Water
Asset Management Methodology



Condition Assessment

Medium Service Pump Station

- Medium Service Pump Station (MSPS) original construction in 1953
- Equipment/piping more than 60 years old
- Motor controls and electrical equipment are obsolete
- Building is very confined and difficult or inaccessible to maintain

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Condition Assessment

Medium Service Pump Station

- Pipe or valve failure could fail, resulting in the MSPS being out of service for an extended period of time
- Recent leak is evidence of potential for similar failure throughout the facility. This lead was very difficult to isolate and required a full shutdown of the MSPS to repair
- Valves and piping are inaccessible for replacement or maintenance

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Condition Assessment

Power Distribution System

- Electrical substation constructed in 1965 (equipment 30 to 50 years old)
- The overhead bus system has failed and could fail again, shutting the entire plant down for an extended period of time
- Electrical equipment has safety concerns due to age and condition

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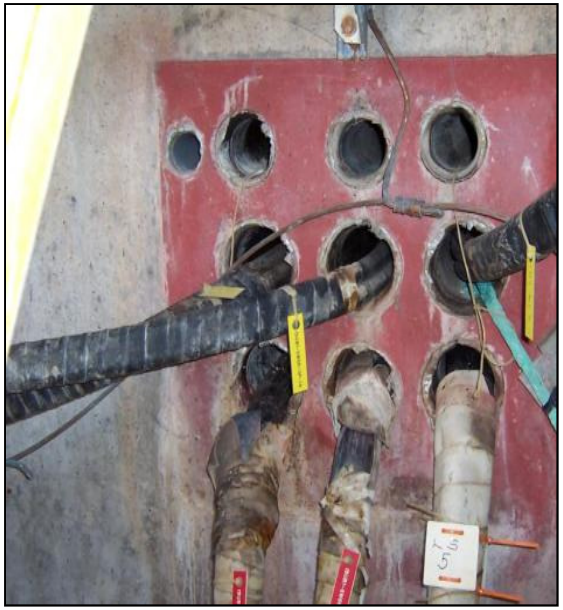
Condition Assessment

Power Distribution System

- Cables are aging (many are original installation/60yrs old)
- Current power distribution system has single power feeds and transformers in critical areas of the plant. Failure in this non-redundant system would shutdown critical process areas



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Criticality

MSPS & Power Distribution System

A. R. Davis WTP has provided continuous and reliable water treatment to the distribution for the past 60 years

- Retail and Wholesale customers = 977,491
- Service Area = 544 square miles
- Service Connections = 224,000
- Distribution = 3,801 Miles
- Fire Hydrants = 27,328
- Pump Stations/Local Boosters= 40
- Reservoirs = 40
- Major Water Treatment Plants = 3
  (WTP4, Ullrich & Davis WTP)

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Redundancy

MSPS & Power Distribution System

- The new MSPS will replace an existing, outdated pump station built in 1953, in order to continue to provide reliable, uninterrupted service to the residents of Austin
- The plant provides redundancy for maintenance issues and emergencies for the water system
- Difficult to maintain/most components are now obsolete and no longer manufactured. Repair parts have to be custom engineered/manufactured
- Not designed with isolation for maintenance. Austin Energy has to cut power to main circuits. Plant cannot internally re-route power during maintenance/emergencies

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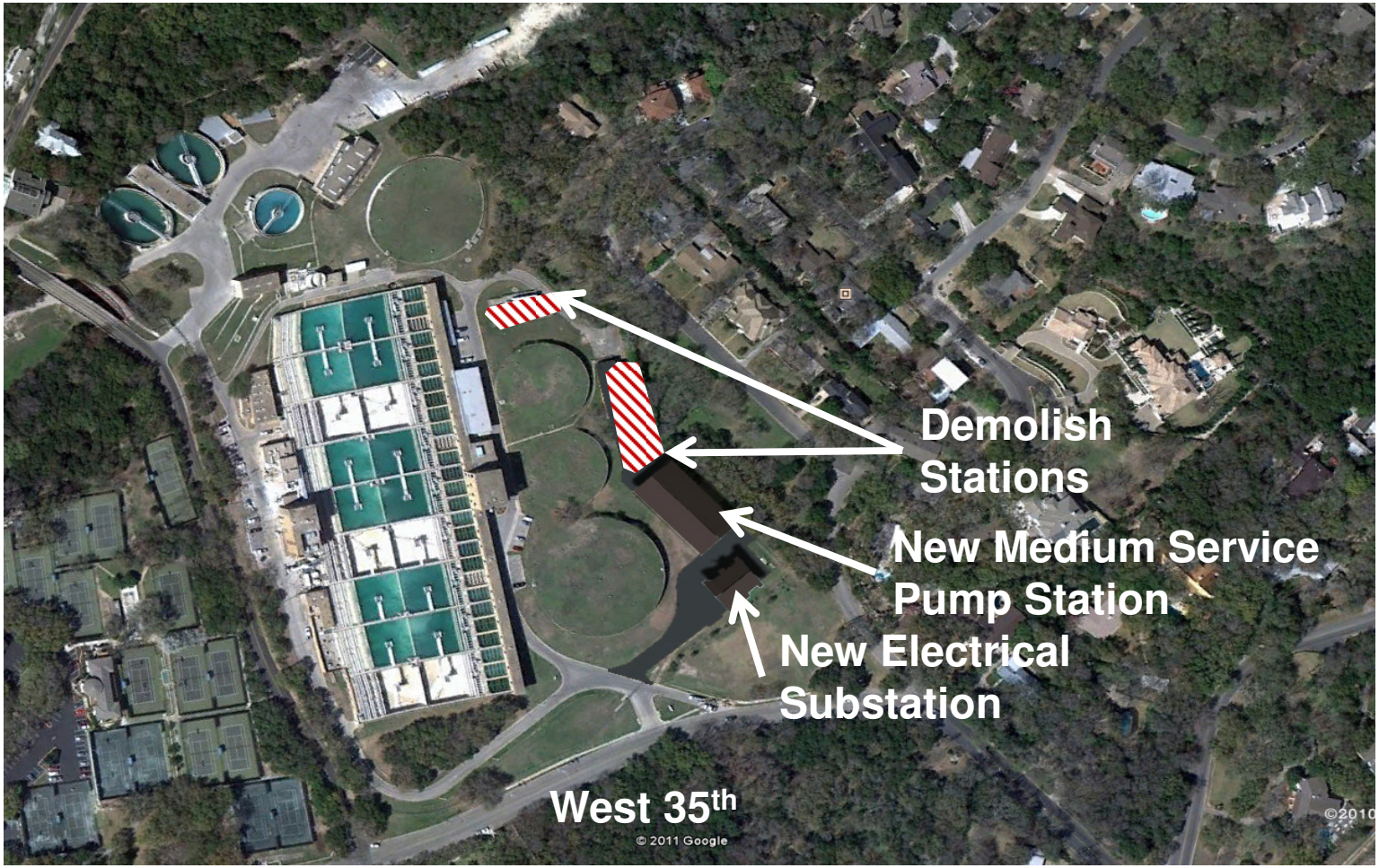
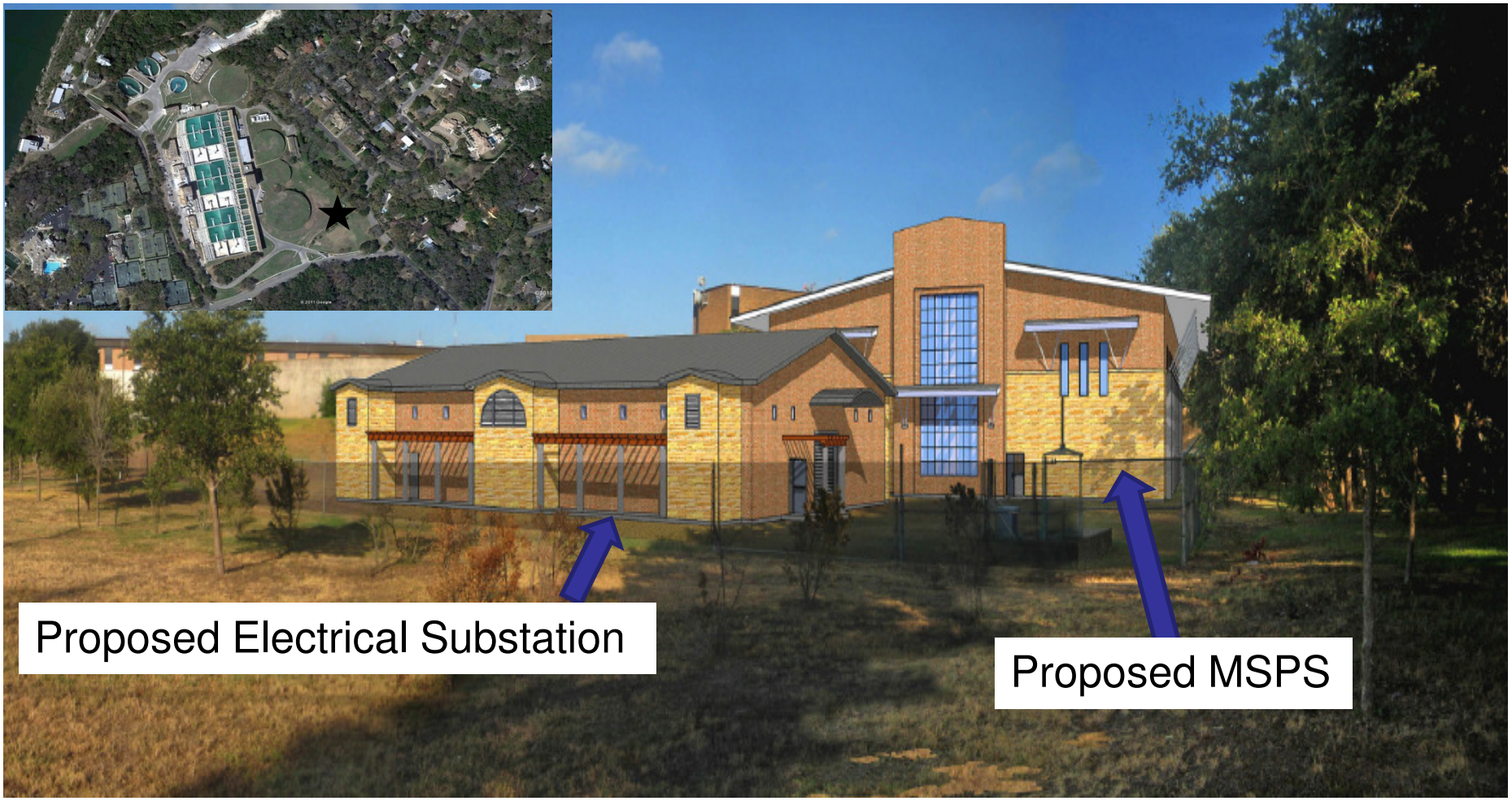
Business Needs

MSPS & Power Distribution System



Architectural Rendering

Proposed View From West 35th Street



Austin Energy's Power Supply

- **Existing Power Supply:**
  - AE Lakeshore feed power cables approx. 25 yrs. old. Originally 4 cables. One completely failed 10 years ago and three remain, but we experienced 2 cable failures last year
  - Overhead neighborhood feed has more exposure than underground and is shared with neighbors/capacity not dedicated to plant

- **Proposed Power Supply:**
  - Install new transformer at Warren Substation.
  - Install two underground cables from Warren Substation to Davis Water Treatment Plant

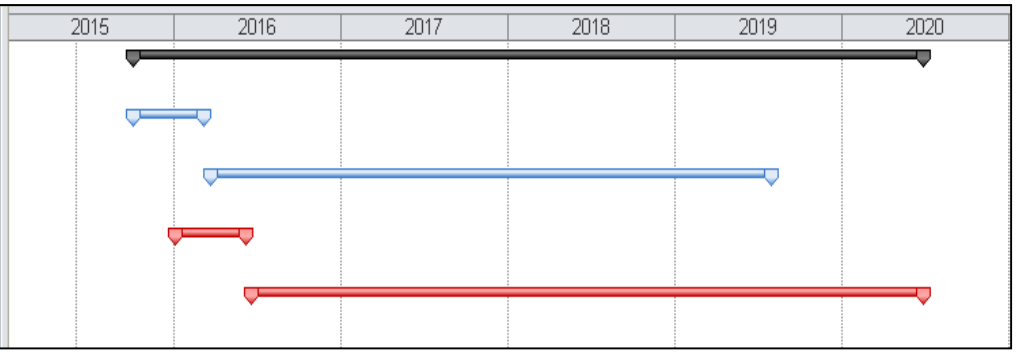
Austin Water

Neighborhood Coordination

- **March 2012 Design Meeting**
- **May 2015 Austin Energy 35th Street & Davis WTP Projects**
- **August 2015 Austin Energy 35th Street (2nd Meeting)**
- **Sept 2015 Austin Energy 35th Street (Upcoming)**

Project Schedule & Cost

Task Name	Start Month	Finish Month
Combined Project Timeline	October 2015	June 2016
MSPS Bid/Award/Execution Phase	October 2015	March 2016
MSPS Construction Phase	March 2016	July 2019
PDU Bid/Award/Execution Phase	January 2016	June 2016
PDU Construction Phase	June 2016	June 2020



PROJECT	ENGINEER ESTIMATE
Davis Medium Service Pump Station	$32 MM
Davis Power Distribution Upgrade	$22 MM
TOTAL	$56 MM

Questions

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