AGENDA
CITY OF CEDAR FALLS, IOWA
COMMITTEE OF THE WHOLE MEETING
MONDAY, NOVEMBER 02, 2020
5:20 PM AT CITY HALL

The meeting will ALSO be accessible via video conference and the public may access/participate in the meeting in the following ways:

a) By dialing the phone number +13126266799 or +19292056099 or +12532158782 or +13017158592 or +13462487799 or +16699006833 and when prompted, enter the meeting ID (access code) 962 7287 1738.
b) iPhone one-tap: +13126266799,,96272871738# or +19292056099,,96272871738#
c) Join via smartphone or computer using this link: https://zoom.us/j/96272871738.
d) View the live stream on Channel 15 YouTube using this link: https://www.youtube.com/channel/UCCzeig5nIS-dIEYisqah1uQ (view only).
e) Watch on Cedar Falls Cable Channel 15 (view only).

To request to speak when allowed on the agenda, participants must click “Raise Hand” if connected by smartphone or computer, or press *9 if connected by telephone. All participants will be muted by the presiding officer when not actually speaking.

Call to Order by the Mayor

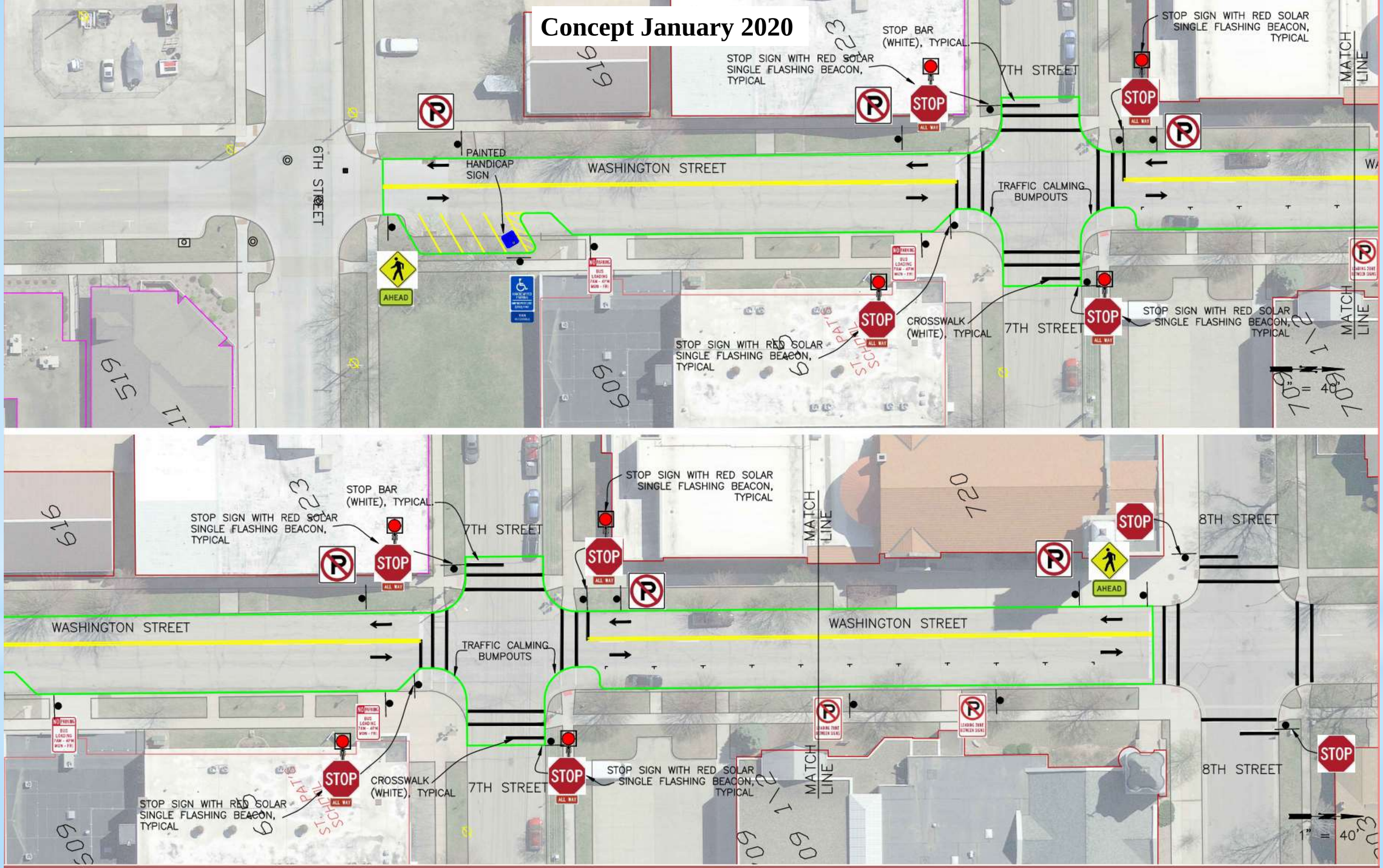
1. Washington Street.
   (30 Minutes)

2. Nutrient Reduction Strategy.
   (60 Minutes)

Washington Street Reconstruction

Existing Conditions

Concept January 2020

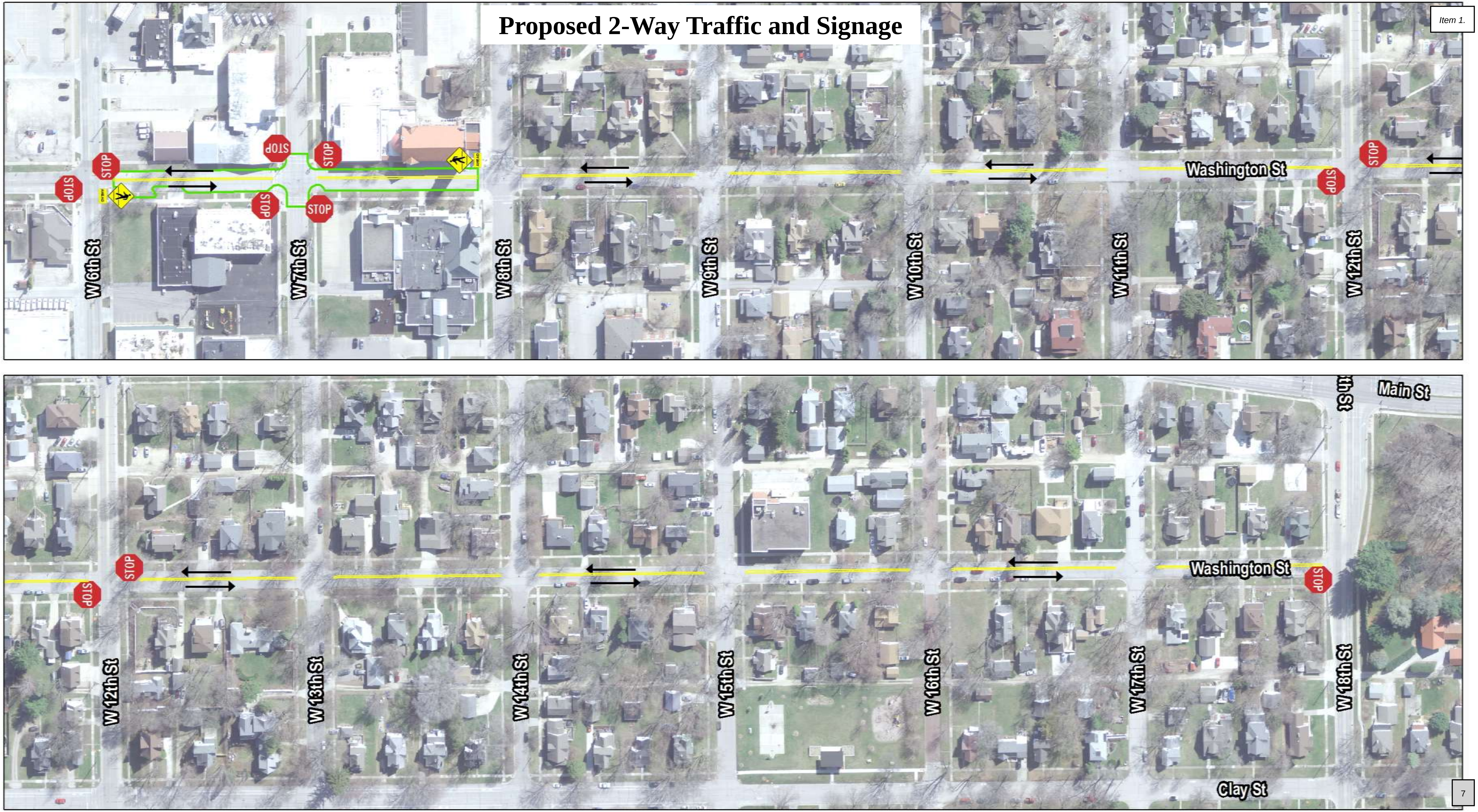


Proposed Site Layout

Washington Street Reconstruction

- **Solar Powered**
- **Timer System**

Proposed 2-Way Traffic and Signage



Washington Street Reconstruction

2-Way Conversion

Pros

- Safer: One-way streets correlate with decreased levels of driver attention
  - One-way streets allow higher travel speeds especially with less stops. The constricted feel will bring traffic calming from attentiveness and speed.
  - Pedestrians prefer crossing two-way streets as drivers tend to travel more slowly and vehicular conflicts are more predictable
  - More intuitive and less chance for driver error going up a one-way street
- Two-way networks allow drivers to take the most direct routes from origin to destination
- Intuitive and easier to navigate – last remaining downtown one-way street
- Ease of Sanitation curb pick-up
- Easier for Snow plowing

Cons

- Church parking in the south –bound lane will be eliminated due to street width constraints

Washington Street Reconstruction

Recommended Motions

1. Approve Design of St. Patrick's School Layout

2. Approve Conversion of Intersection from Lights to Flashing Red Stop Signs 4-Way Stop Controlled Intersection

3. Approve Washington Street Conversion as Proposed Tonight


ST PAT
SCHO

References

[1]Baco, M. (2009). One-way to Two-Way Street Conversions as a Preservation and Downtown Revitalization Tool: The Case Study of Upper King Street, Charleston, South Carolina. Thesis Presented to the Graduate School of Clemson University.

[2]Chui, Y., Zhou, W., Hernandez, J. (2007). Evaluating Urban Downtown One-Way to Two-way Street Conversion Using Multiple Resolution Simulation and Assignment Approach. Journal of Urban Planning and Development, Vol. 133(4), American Society of Civil Engineers.

[3]Forbes, G. (1998). Vital Signs: Circulating in the Heart of the City – An Overview of Downtown Traffic. ITE Journal, Vol. 68(8), Institute of Transportation Engineers.

[4]Gayah, V., Daganzo, C. (2012). Analytical Capacity Comparison of One-Way and Two-Way Signalized Street Networks. Transportation Research Record, No. 2301, Transportation Research Board, Washington D.C.

[5]Hocherman, I., Hakkert, A.S., Bar-Ziv, J. (1990). Safety of One-Way Urban Streets. Transportation Research Record, Number 1270, p. 22-27, Transportation Research Board, Washington D.C.
[6]Lyles, R., Faulkner, C., Syed, A. (2000). Conversion of streets from One-Way to Two-Way Operation. Final Report, Michigan Department of Transportation. Department of Civil and Environmental Engineering, Michigan State University.
[7]Riggs, W., Gilderbloom, J. (2015). Two-Way Street Conversion: Evidence of Increased Livability in Louisville. Journal of Planning Education and Research, Vol. 36.
[8]Tindale, S., Hsu, P. (2005). Crash Data and Signal Coordination: A One-Way Pair Case Study. Journal of Safety Research, Vol. 36.
[9]Walker, G.W., Kulash, W.M., McHugh, B.T. (2000). Downtown Streets Are We Strangling Ourselves on One-Way Networks? TRB Circular E-CO19: Urban Street Symposium, Transportation Research Board, Washington, D.C.
[10]Wolshon, B., Pande, A. (2016). Traffic Engineering Handbook, Institute of Transportation Engineers.

---------- Forwarded message ---------
From: **St. Patrick Office** <office@cfcatholicschool.org>
Date: Wed, Jul 22, 2020 at 12:17 PM
Subject: Washington Street Update
To:

St. Patrick School Families,

After numerous consultations with representatives from the parish and school communities, Chase Schrage from the City of Cedar Falls presented a final draft of what will be presented to the City Council on Aug. 3, 2020.

The proposed draft was approved by both school and parish representatives. In the new plan, Washington Street will become a two way with a school drop off lane for students arriving by car and adding 11 parking spots on the weekends. A similar lane for the bus drop off will be developed on 7th street which will provide additional parking for weekends. A four-way stop will be developed on the corner of Washington and 7th street with continuous flashing lights throughout the school day. Extra-large pedestrian walkways will be painted on all crosswalks as well as installing pedestrian walkway signs prior to the intersection.

We feel this is a safe and well thought out plan for this project that will be completed in the summer of 2021. It seems to be a win-win with St. Patrick School finally having a designated drop off lane and the parish retaining several weekend parking spaces.

Thank you for your support of this project.

Fr. Dennis Colter and Lynette Hackett

St. Patrick Catholic School: Established in Faith ~ Distinguished in Education
www.cfcatholicschool.org
www.facebook.com/cfcatholicschool
St. Patrick Catholic School
319-277-6781

"You are God's Masterpiece" Ephesians 2:10

--

Oksana Grybovych Hafermann, Ed.D.
Associate Dean for Academic Affairs
Associate Professor and Head, Department of Health, Recreation and Community Services
College of Education, University of Northern Iowa

Cedar Falls Master Plan Update

Recommendations

November 2, 2020

CEDAR FALLS Iowa

BLACK & VEATCH

Cedar Falls Nutrient Reduction Study Update

Background

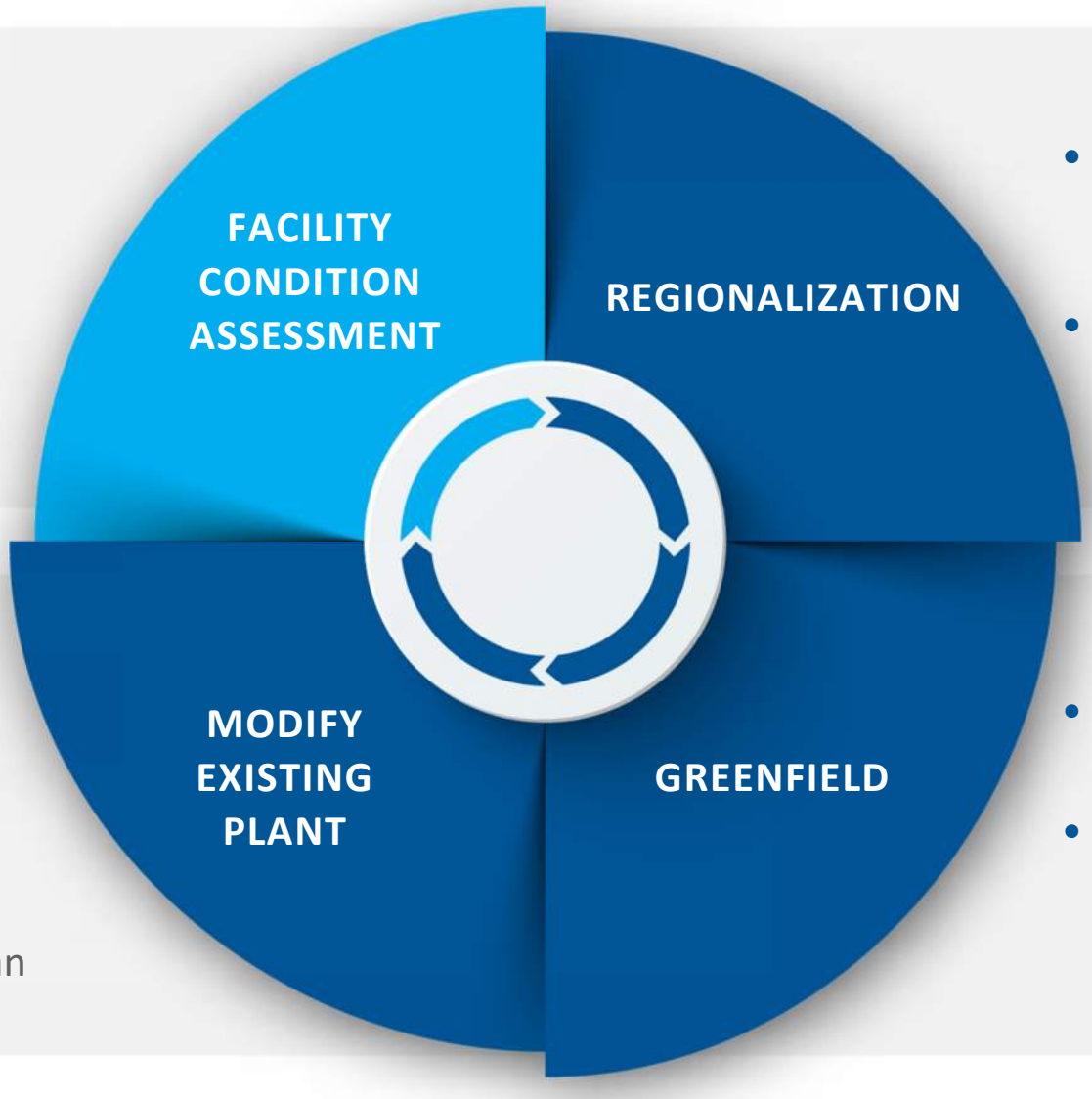
- **Wastewater Reclamation Facility (WRF)**
  - Located near downtown
  - Utilizes older trickling filter technology
- **IDNR Nutrient Reduction Limits**
  - Total Nitrogen Limit: 1.0 mg/L
  - Total Phosphorus Limit: 10 mg/L
- **2016 Nutrient Reduction Study**
  - Trickling filter technology unable to meet IDNR nutrient limits
  - Significant plant improvements are required
  - Developed implementation schedule
  - Agreed to evaluate regionalization approach during next permit cycle

2020 - Cedar Falls
Nutrient Reduction Study Update

Scope of Services

- **Facility Condition Assessment**
- **Alternative Evaluation**
  - Regionalization
  - Greenfield
  - Modify Existing Plant
- **Cost Comparisons**

- Estimate remaining useful life
- Identify equipment Improvements



- Pump station and conveyance pipeline to Waterloo
- Identify unidentified cost items

- Revisit 2016 recommendations
- Evaluate emerging technologies
- Develop phased implementation plan

- Determine required land area
- Combined conveyance and treatment costs of implementation

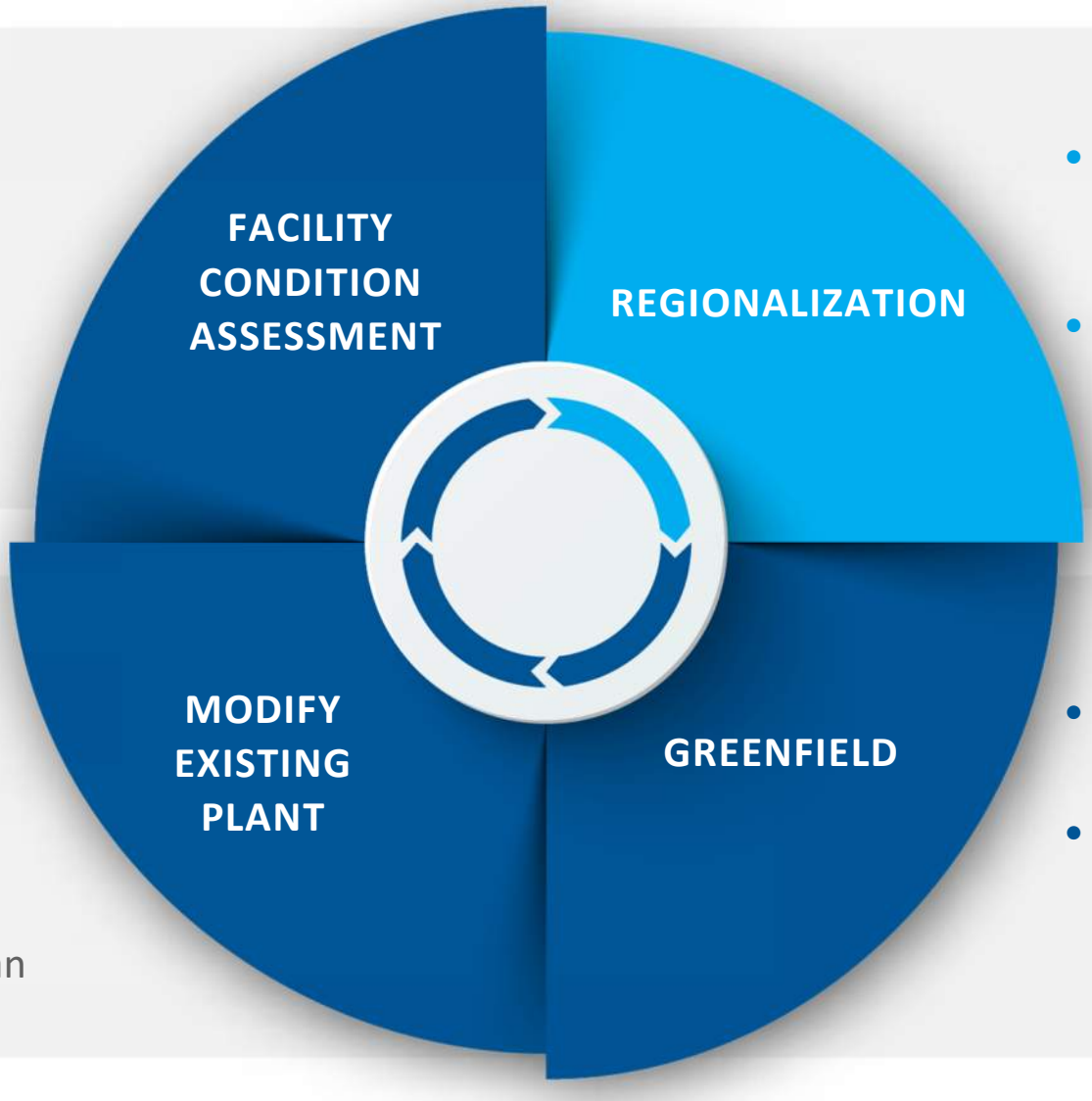
Facility Condition Assessment

- Most facilities in good condition
- Estimated remaining useful life based on current condition and age
- Existing Digester Control Building requires modifications to meet NFPA Code

PROCESS	SHORT-TERM RECOMMENDATION
COARSE SCREENING	• No immediate repairs needed
IN-PLANT LIFT STATION	• Recoat pumps and valves
CONTROL BUILDING	• **Address NFPA Code Compliance (Major Deficiency)**
EQ BASIN	• Recoat Piping & Supports
GRIT REMOVAL	• Repair/Remove Deteriorated Concrete Structures
PRIMARY CLARIFIERS	• Replace corroded scum baffles • Replace second sludge pump • Repair spalled concrete
FIRST STAGE TRICKLING FILTERS	• Replace corroded distributor arms
SECOND STAGE PUMP STATION	• No immediate repairs needed
INTERMEDIATE CLARIFIER	• Repair Concrete Walls[1]
SECOND STAGE TRICKLING FILTER	• No immediate repairs needed
FINAL LIFT STATION	• Replace MCC3[1] • Monitor/Repair Concrete at Guardrail Posts
THIRD STAGE PUMP STATION	• No immediate repairs needed
THIRD STAGE TRICKLING FILTER	• Replace/Repair corroded center column and distributor arms[1]
FINAL CLARIFIERS	• Monitor/Repair Concrete at Guardrail Posts
UV DISINFECTION	• No immediate repairs needed
BIOSOLIDS HANDLING	• Replace polymer feed pumps • Monitor Progressing Cavity Pumps and Replace with Rotary Lobe Pumps
DIGESTERS	• Seal Cracks and Joints at base of wall • Replace interior tank liner and seal infiltration points • Recoat interior piping and steel covers • Repair Cracks at Control Building Between Digesters

[1] Recommended if process is to remain in service long-term

- Estimate remaining useful life
- Identify equipment Improvements



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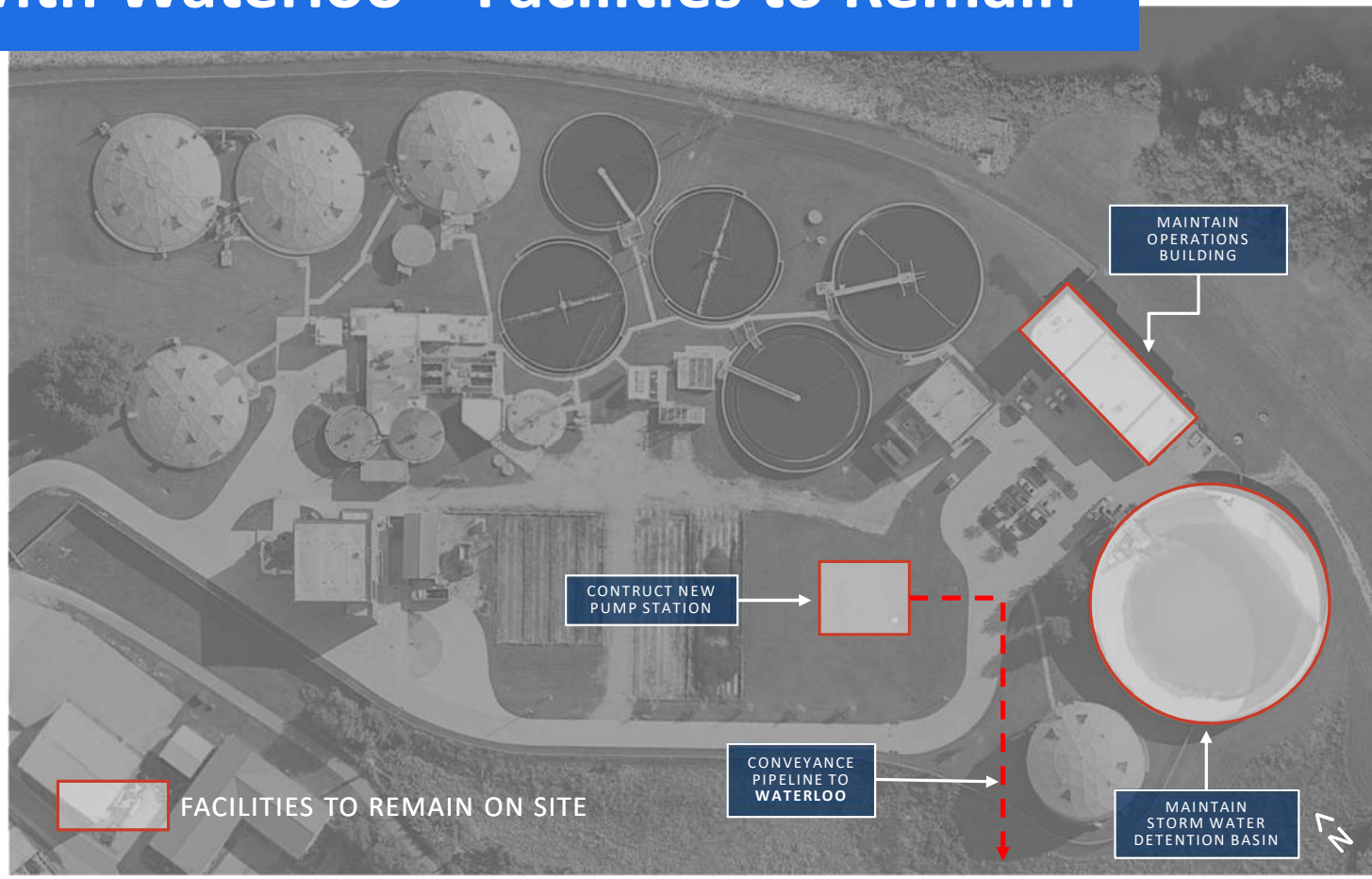
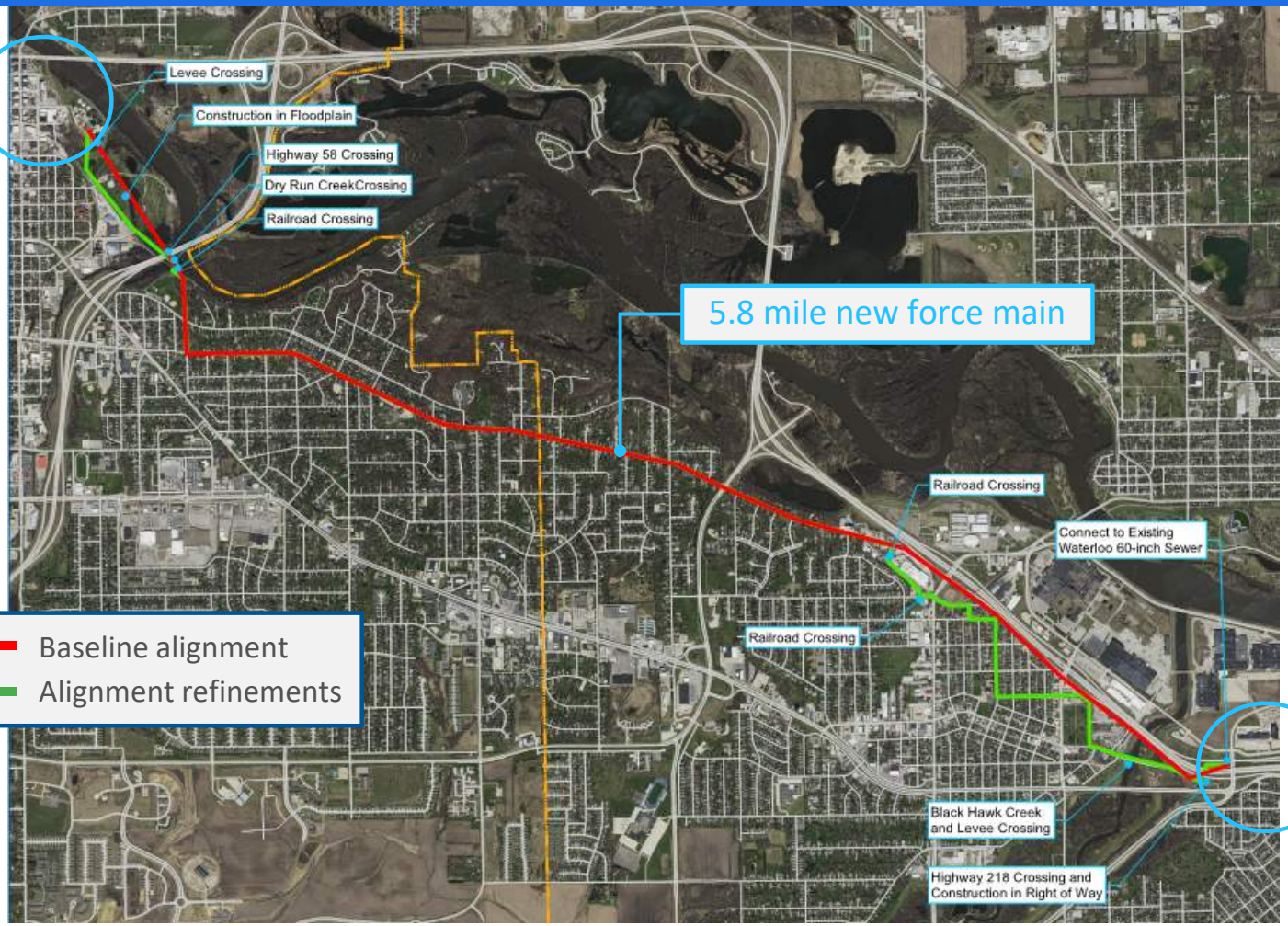
Regionalization with Waterloo – Facilities to Remain

- Demolition of existing WRF facilities
- Equalization Basin and Administration Building would remain
- Conveyance sewers may reduce buildable area
- Construct new pump station
- Construct approximately 5.8 miles of dual force main to convey flow to Waterloo



Conceptual Regional Force Main Alignment



Cedar Falls WRF

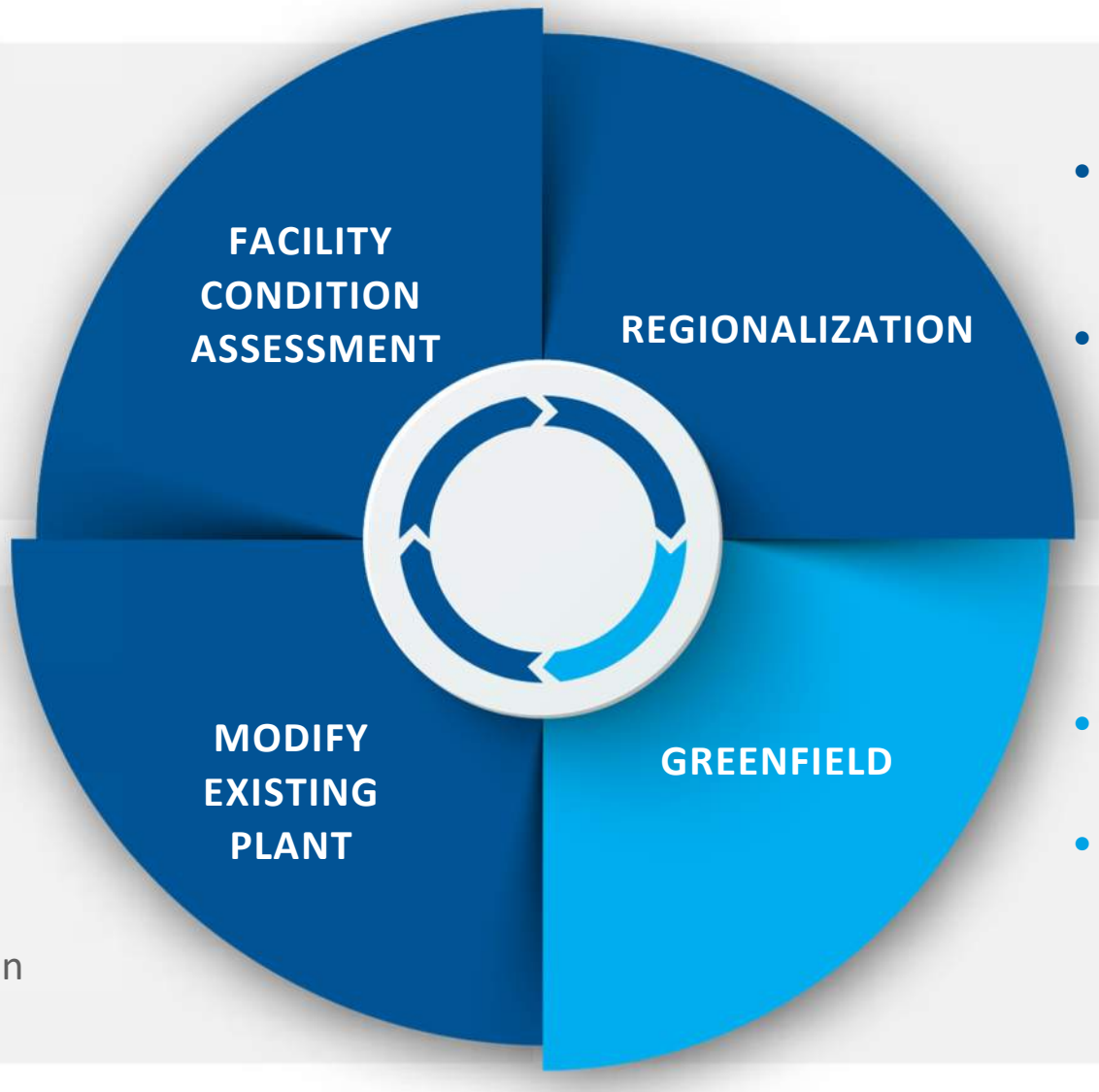
Connection Point With Waterloo

Estimated Project Cost - Regionalization with Waterloo

- **Capital Costs:**
  - New Pump Station
  - Demolition of existing WRF
  - New Dual Force Main (Redundancy)
- **Costs Not in Regionalization Report**
  - Second, redundant force main
  - Adequate estimation of surface restoration
  - Demolition of existing WRF
- **Additional Costs Not Yet Quantified:**
  - Land Acquisition for Force Main alignment
  - Potential Buy-In to Waterloo treatment system
  - Waterloo WWTP Improvements (Nutrient Removal)
  - Facility Condition Assessment

New Pump Station and Conveyance Pipeline (millions)	
Construction Cost	$91.40M
Engineering, Legal, Admin (20%)	$18.30M
Total Capital Cost	**$109.6M**

- Estimate remaining useful life
- Identify equipment Improvements



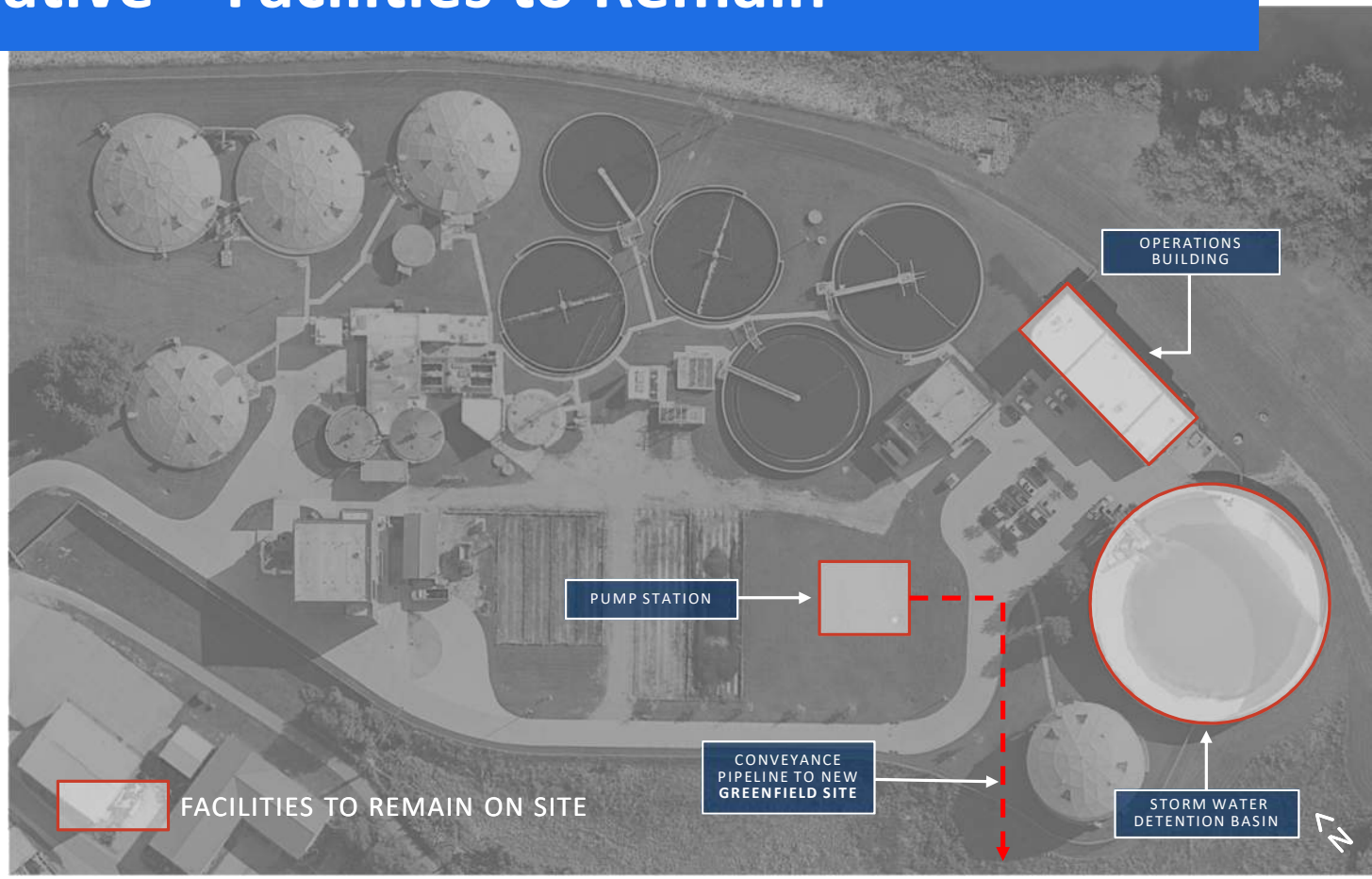
- Pump station and conveyance pipeline to Waterloo
- Identify unidentified cost items

- Revisit 2016 recommendations
- Evaluate emerging technologies
- Develop phased implementation plan

- Determine required land area
- Estimate conveyance and treatment plant costs

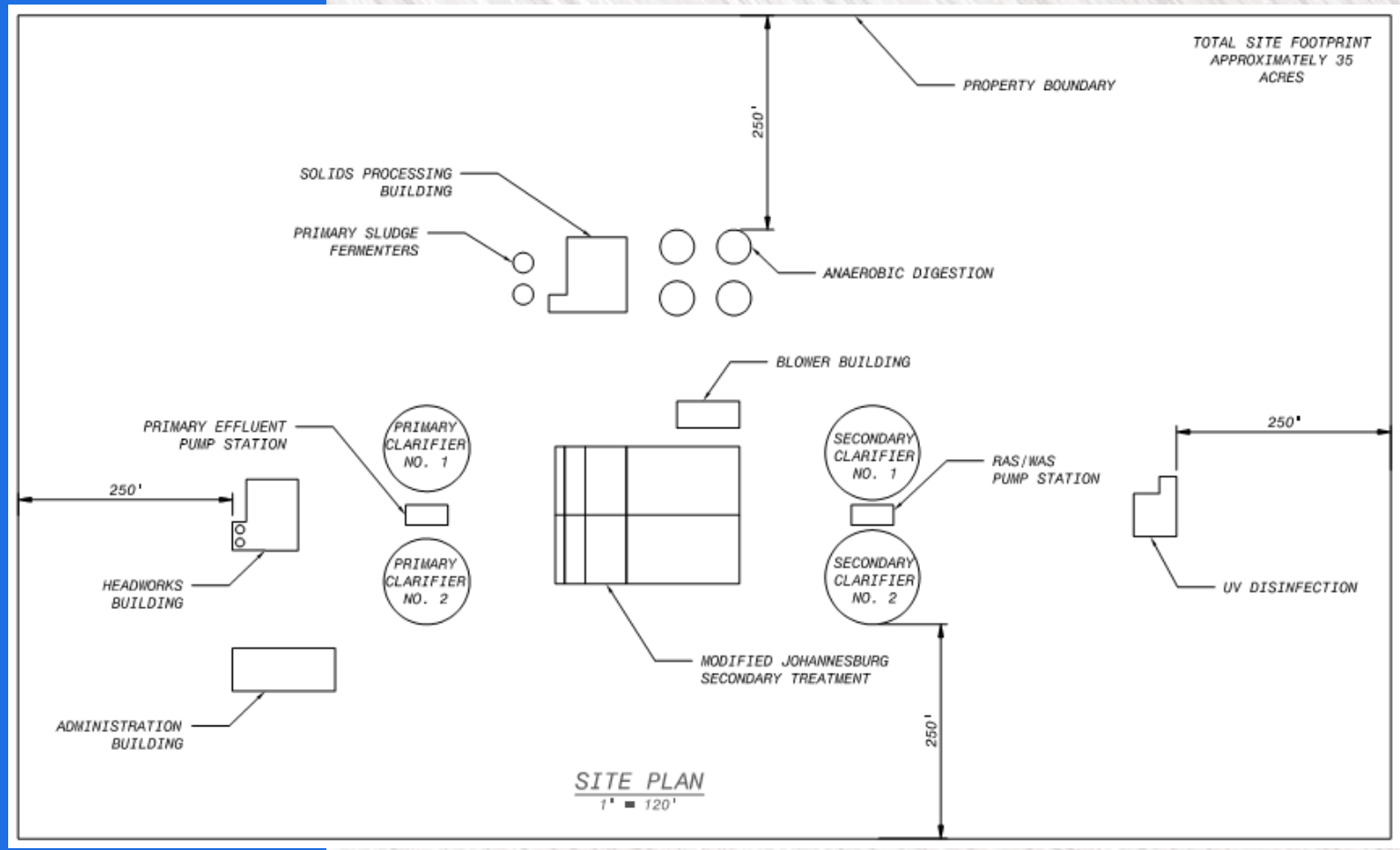
Greenfield Alternative – Facilities to Remain

- Demolition of existing WRF facilities
- Equalization Basin and Administration Building would remain
- Construct new pump station and force main to convey to new WRF
- Costs for new pump station and force main similar to regionalization alternative



Greenfield WRF Layout

- Alternative WRF location not yet identified by City
- New WRF based on BNR technology
- Possibly more stringent effluent limits based on new discharge location
- Aerobic granular sludge (AGS) technology could provide savings

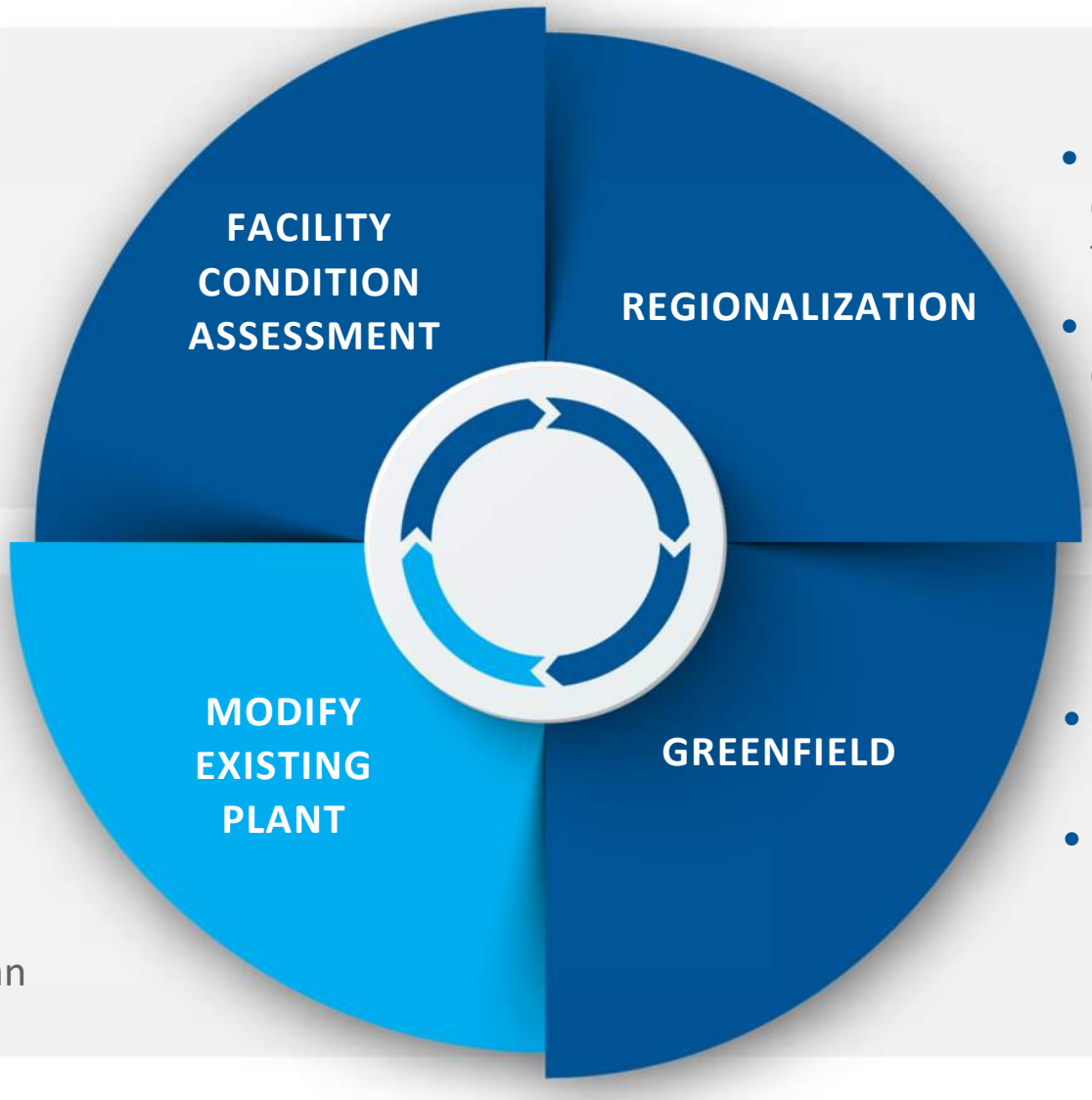


Greenfield WRF Cost Summary

- **Capital Cost Only**
  - Significant cost to demo existing WRF structures
- **Additional Costs Not Yet Quantified:**
  - Land Acquisition for WRF and Force Main alignment
    - Approximately 35 acres
  - Site Utility Feeds (Electric, Natural Gas, Water, Etc.)
  - Permitting Fees and Water Quality Monitoring
  - Additional Outfall Sewer (if not within the site footprint)
  - Pipeline Easements

New Greenfield WRF and Conveyance (millions)	
Conveyance to New Site	$109.7M
Greenfield WRF	$164.6M
Total Project Cost	**$274.3M**

- Estimate remaining useful life
- Identify equipment Improvements



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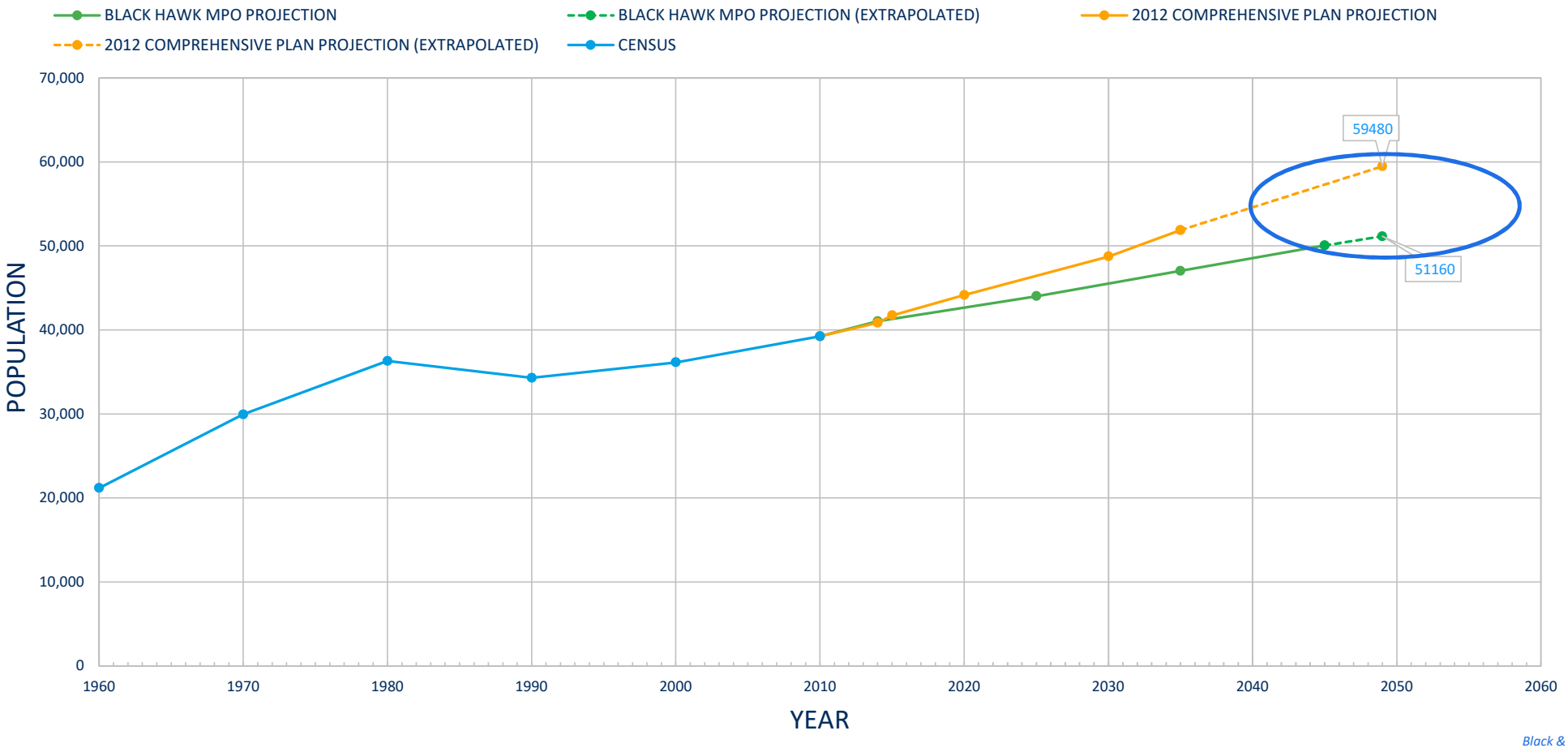
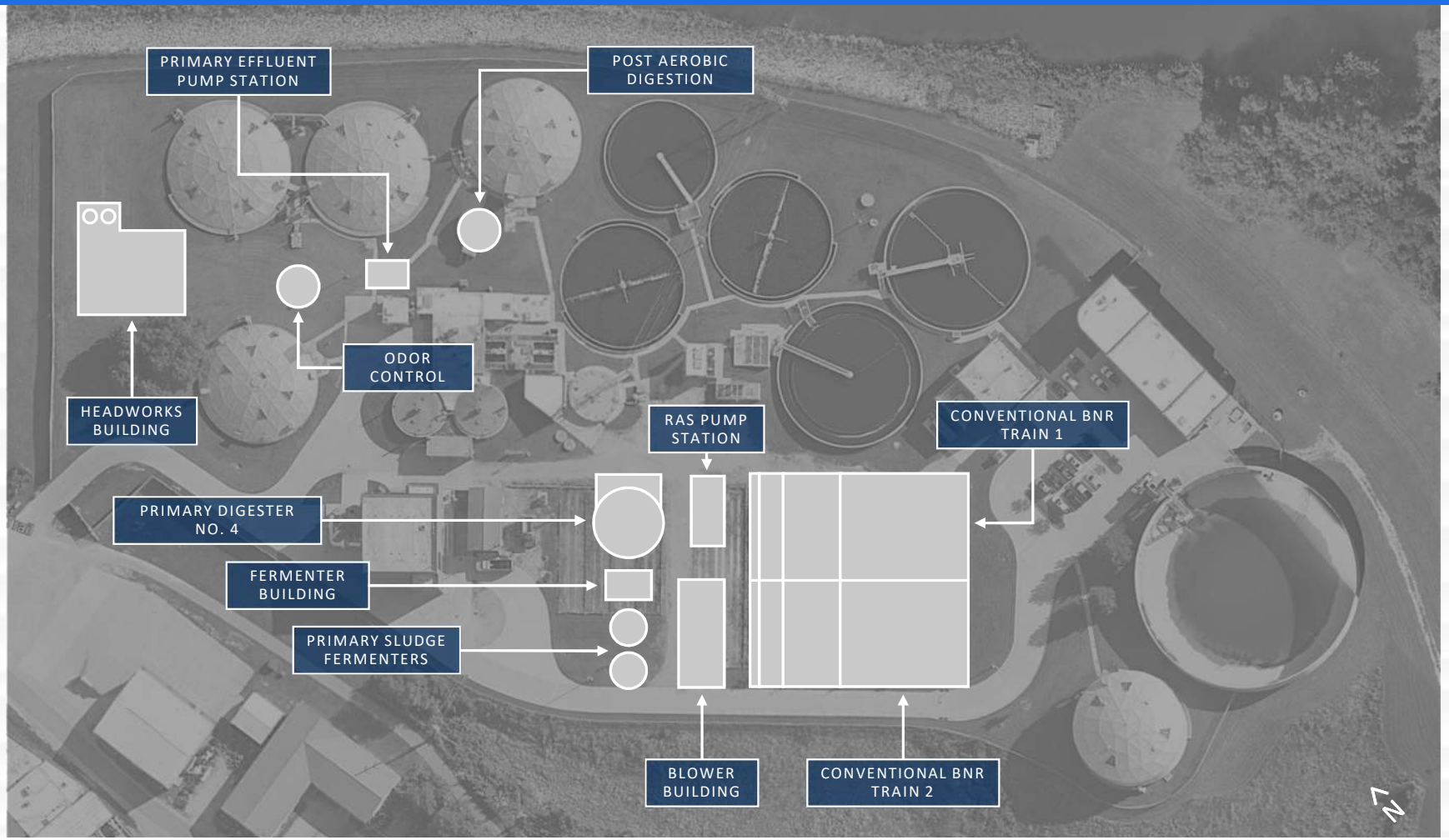
Population Projections – 2049 Design Year



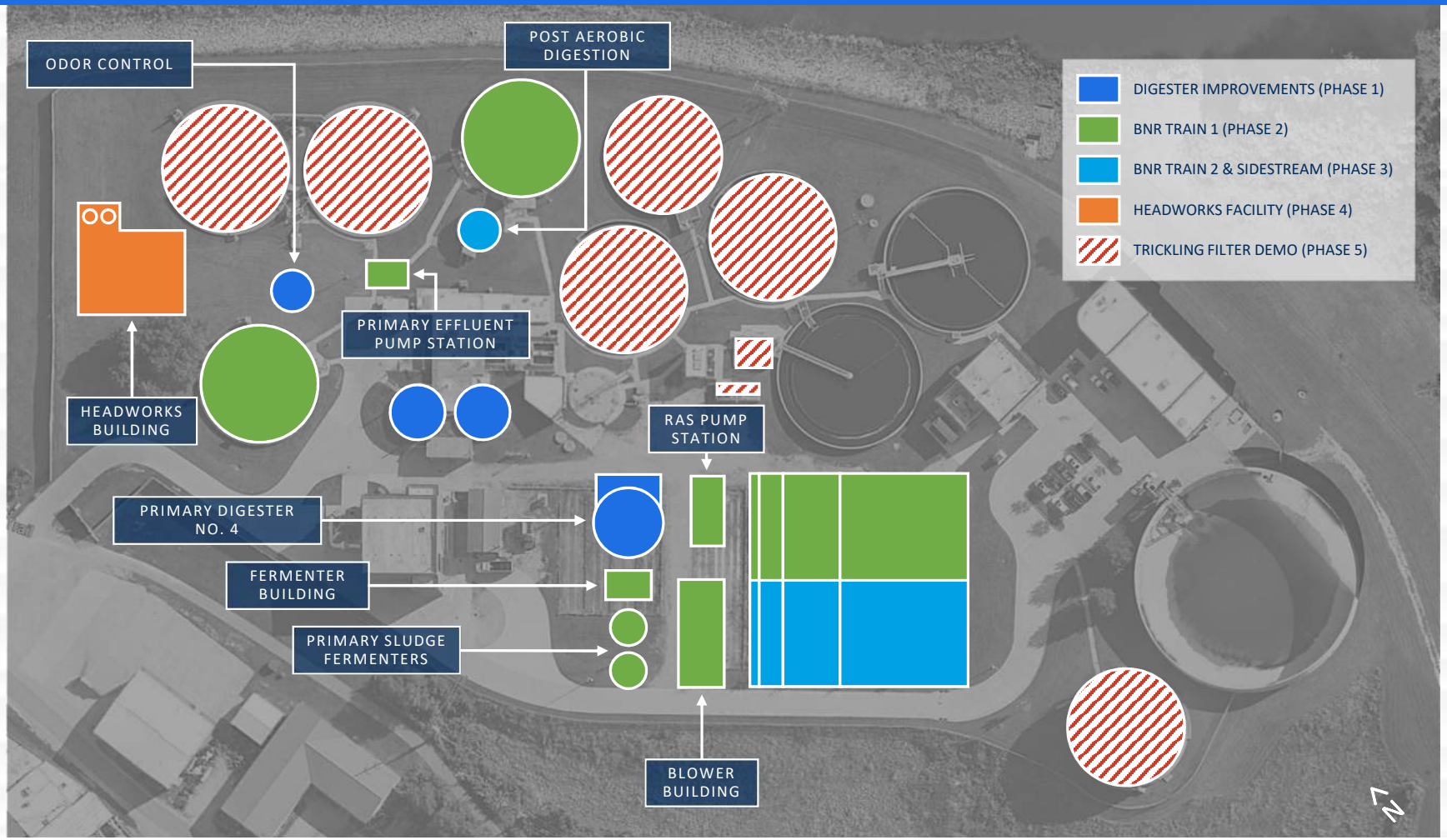
Technology Evaluation and Recommendations

- **Conventional Biological Nutrient Removal (BNR) provides least cost investment**
  - Flexible to meet future requirements
  - Accommodates existing space
- **AGS and MABR – innovative technologies**
  - Less than 10% capital cost difference
  - Both represent opportunities for reduced O&M cost
  - Potential non-cost benefits
- **Other Technologies Evaluated**
  - MBR
  - Tertiary Algae

Recommended Improvements



Potential Phasing Plan



Phased implementation will ultimately meet IDNR nutrient reduction limits

- Implement Phase 1 (Digester Improvements) and Phase 2 (BNR Train 1) to move towards meeting IDNR nutrient reduction limits
- Implement Phase 3 once Trickling Filters are retired
- Phasing plan will need IDNR approval

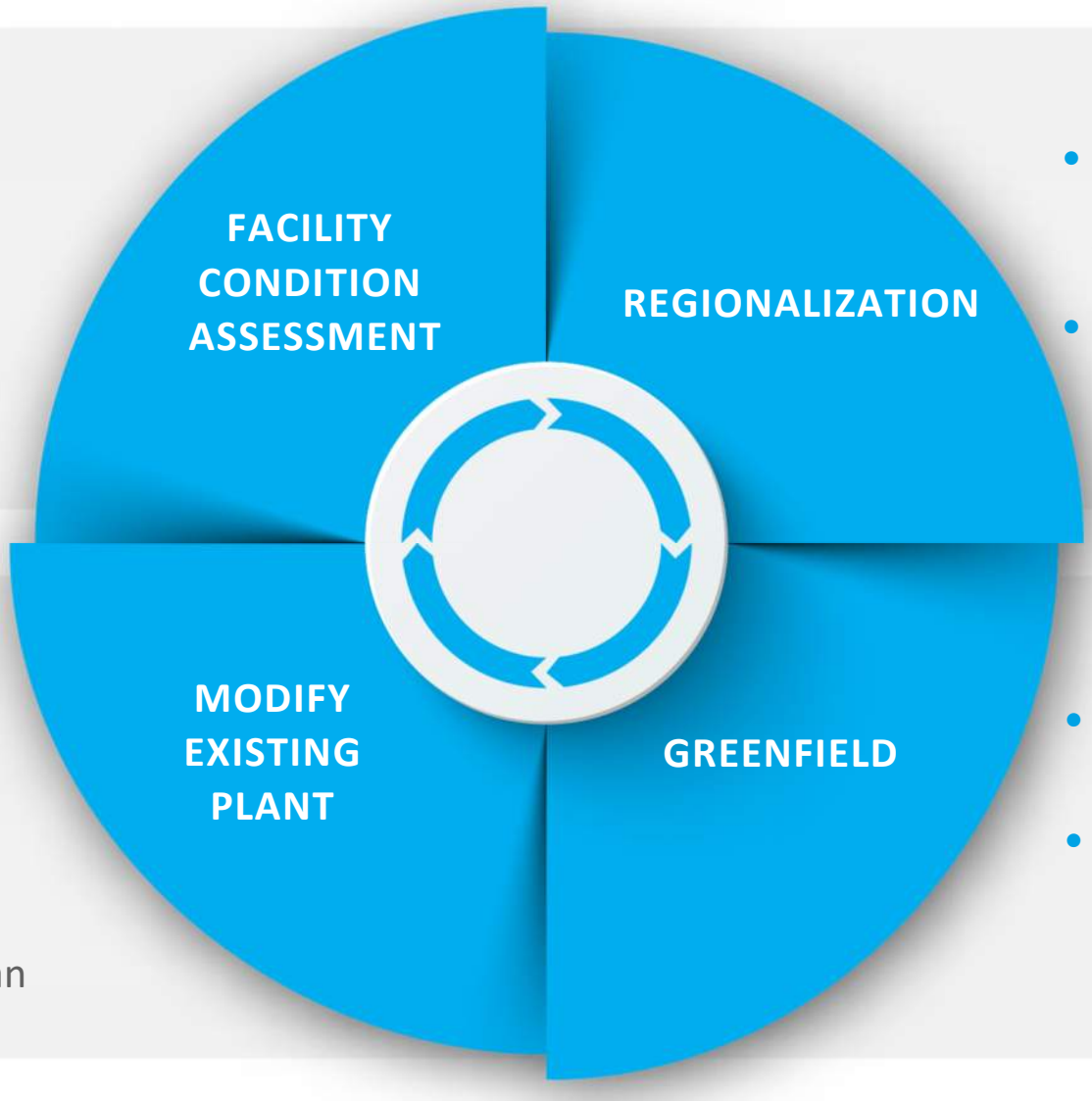
	Average Total Nitrogen (mg/L)	Average Total Phosphorus (mg/L)
IDNR Permit Limits	**10**	**1**
Existing WRF	22	3.1
Phases 1 and 2	15	2
Phases 1, 2 and 3	10	1

Estimated Project Costs – Modifications To Existing WRF

MODIFICATIONS TO EXISTING WRF (MILLIONS)						
PHASES	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	**TOTAL**
	Digester & Odor Control	**BNR Train 1**	**BNR Train 2**	**Headworks**	**Demolition**	
Construction Cost	$17.1M	$ 22.6M	$13.6M	$ 12.2M	$ 15.4M	$80.9M
Engineering, Legal, Admin (20%)	$3.4M	$ 4.5M	$ 2.7M	$ 2.5M	$ 3.1M	$16.2M
TOTAL PROJECT COST	**$20.50 M**	**$27.1 M**	**$16.3 M**	**$14.7M**	**$18.5M**	**$97.1M**

$64M

- Estimate remaining useful life
- Identify equipment Improvements



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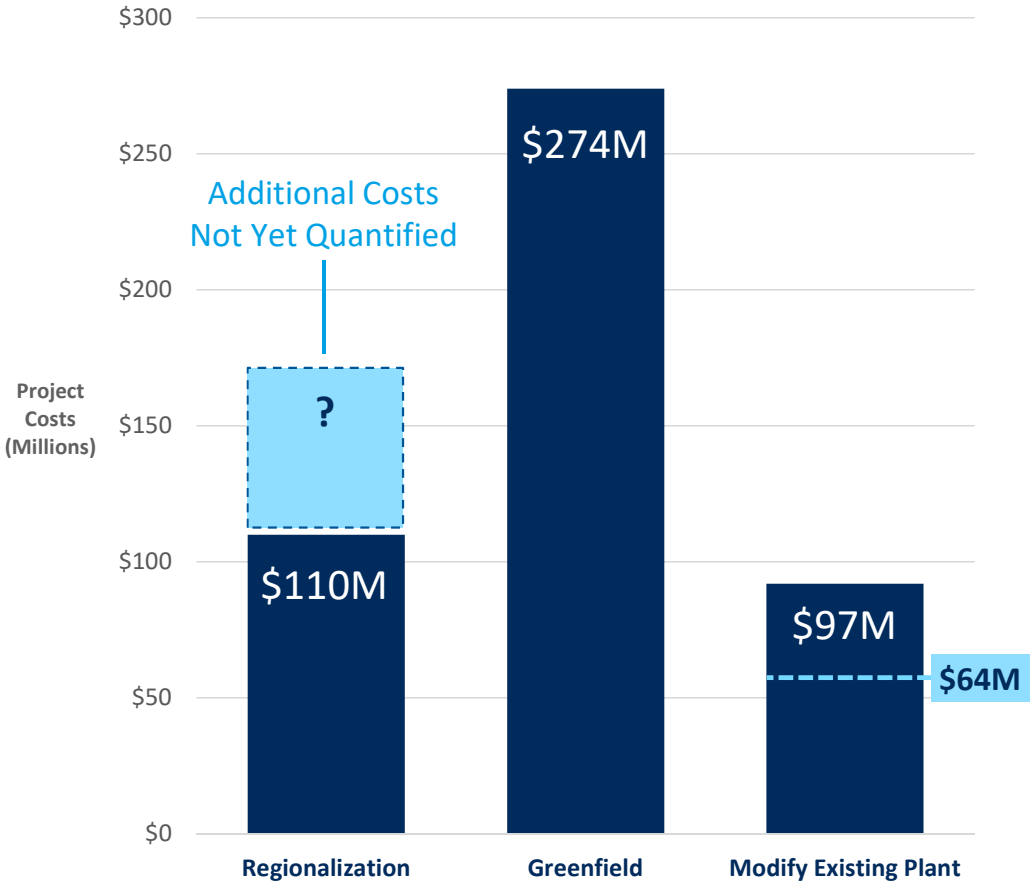
Project Cost Comparison

- **Regionalization**
  - Costs include pump station, dual pipeline, and demolition
  - Acquiring easements/land and Waterloo buy-in costs not included
- **Greenfield**
  - Costs include state of the practice technologies, conveyance, and demolition
  - Conveyance costs can be reduced if nearby land is identified
- **Modify Existing Plant**
  - Costs for Phases 1-3 are required to comply with IDNR nutrient limits
  - Phased implementation plan will require IDNR approval



Questions