

2024 Water and Wastewater Master Plan

OXFORD COUNTY COUNCIL MEETING
JULY 12, 2023

PROBLEM/OPPORTUNITY STATEMENT

To identify preferred water and wastewater servicing strategies to meet Oxford's growth needs to 2046 as well as provide effective on-going continuity to existing serviced settlement areas across Oxford County as appropriate.



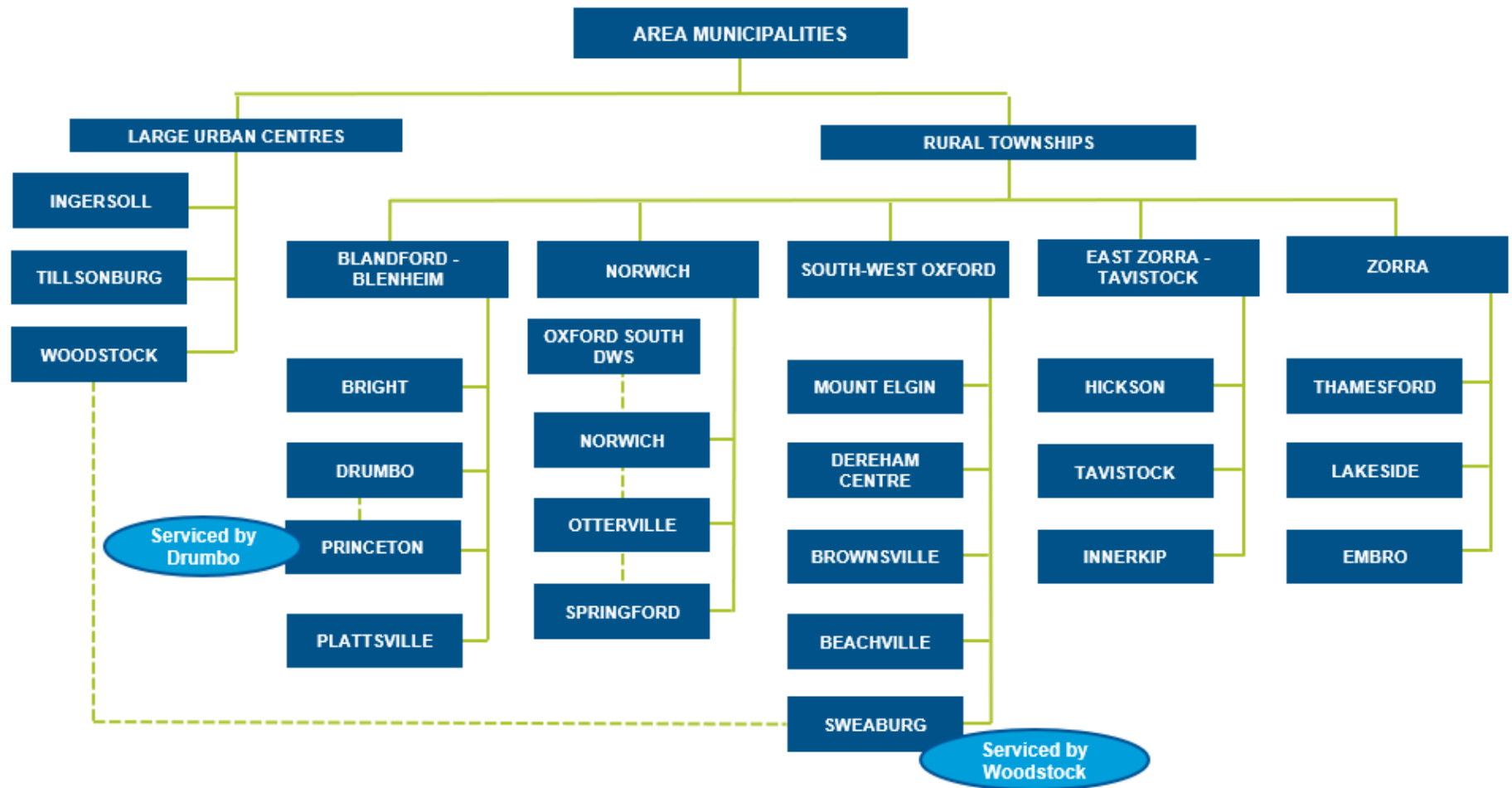
MASTER PLAN SERVICING PRINCIPLES

- Optimize and maximize the available capacity in existing infrastructure before consideration of new infrastructure;
- Provide infrastructure reliability, redundancy and security;
- Develop infrastructure systems which meet the MECP legislative requirements, best management practices and County's established asset level of service framework;
- Utilize proven, reliable, and financially sustainable technologies;
- Recognize water conservation and sewage system infiltration reduction measures which support environmental sustainability;
- Optimize pumping and storage infrastructure to maintain level of service under emergency conditions and extreme weather events;
- Offer infrastructure solutions that recognize potential for growth beyond current planning horizons.

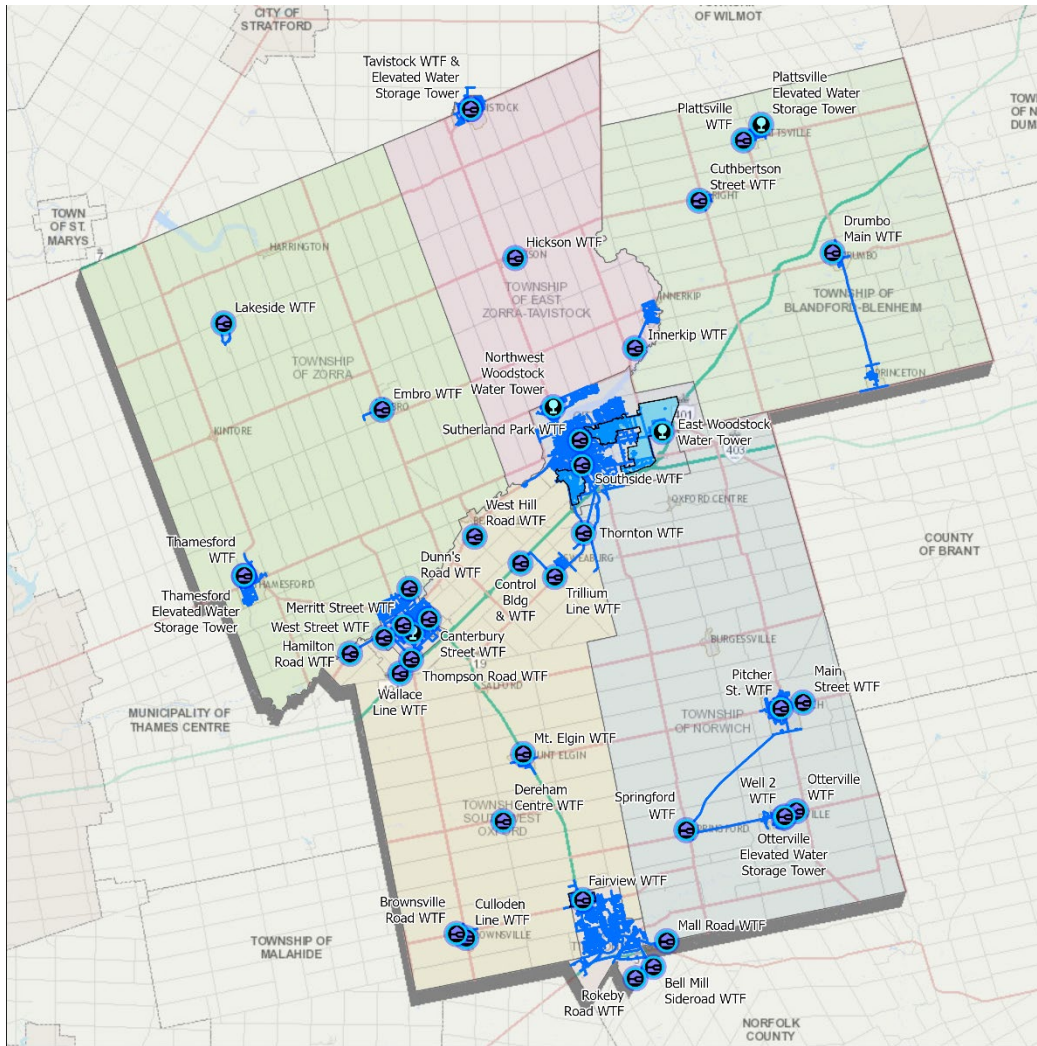
MASTER PLAN DEVELOPMENT

- Adhere to Municipal Class Environmental Assessment Master Plan process – Phases 1 & 2
- Review of Existing and Future Conditions:
 - > Historical Water Consumption and Wastewater Generation
 - > Assessment of Existing Infrastructure: Opportunities/Constraints
 - > Population and Employment Growth to 2046
 - > Projection of Water and Wastewater System Demands – Design Criteria
 - > Assess System Risk and Resiliency
- Public Consultation and Engagement
- Preferred Water & Wastewater Strategy to 2046

COUNTY WATER SYSTEMS



EXISTING WATER INFRASTRUCTURE



WATER SYSTEM OPPORTUNITIES AND CONSTRAINTS

- Security of supply
 - (i.e., standby power to water facilities, specialized well rehabilitation, water blending, feedermain twinning, water efficiency and conservation, etc.)
- System redundancy
 - (i.e., new well supplies to increase firm capacity, inter-system water connections, watermain looping, etc.)
- Impacts due to new areas requiring servicing
- Pressure zone boundary adjustments
 - (i.e., infill and intensification, new employment lands, secondary units, etc.)
- Water production and system operational issues
 - (i.e., pressure, fire flow, filtration backwash frequencies, etc.)
- Infrastructure capacity limitations
 - (i.e., high lift pumps, feeder mains, well yields, etc.)
- Source water quality
 - (i.e., nitrates, iron, manganese, naturally occurring arsenic, etc.)
- Unaccounted system water loss

PREFERRED WATER SERVICING STRATEGY

- Focus growth and development to Designated Settlement Areas, including Secondary Plan Areas
- Expand existing water distribution system (watermains, new booster pumping stations, new storage facilities) to service infill areas and employment lands
- Optimize existing well yields and/or new well supply / Water Treatment Plant expansions (includes security of supply)
- Strategic inter-community water system connections
- Water conservation and efficiency best management practices
- Source Water Protection

TOWN OF INGERSOLL

Ingersoll DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Existing storage capacity deficit by 2041
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Water distribution system extension to service South West Industrial Park - watermains, BPS, and elevated storage, including Hwy 401 crossings
 - > Wallace Line Trunk Watermain
 - > South Thames Trunk Watermain
 - > New elevated storage

TOWN OF TILLSONBURG

Tillsonburg DWS

- **SERVICING CAPACITY:**
 - > Water capacity deficit beyond 2036
 - > Adequate storage capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Upgrades to well 7A treatment facility
 - > Water security
 - Replacement of Wells 1A, 2, 6A, and 11, upgrades to Wells 3 treatment facility (currently offline), North Street backup power, specialized well rehabilitation to maintain well yields
 - > Water distribution system extension to service residential and employment infill areas, trunk watermains, watermain looping/upsizing

CITY OF WOODSTOCK

Woodstock DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Adequate storage capacity to 2046

- **KEY INFRASTRUCTURE PROJECTS:**
 - > Water security
 - Source water protection, tower backup power generation, Southside WTF replacement, Thornton Feedermain twinning, specialized well rehabilitation to maintain well yields, upgrades Well 6&9
 - > Water distribution system extension (watermains, BPS, and storage, highway crossings) to service infill areas and NE Industrial Park, SE Industrial Park and Karn Rd
 - > Pressure zone expansions (zone 2, zone 3) and new zone 6 (Karn Road)

TOWNSHIP OF BLANDFORD-BLENHEIM

Drumbo-Princeton DWS

- **SERVICING CAPACITY:**
 - > Adequate water and storage capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > New well supply
 - > Specialized well rehabilitation to maintain well yields
 - > Standby power to existing well field
 - > Water distribution system extension to service infill areas - trunk watermains / upsizing

Plattsville DWS and Bright DWS

- **SERVICING CAPACITY:**
 - > Plattsville - adequate water supply and storage capacity to 2046
 - > Bright - adequate water supply and storage capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Plattsville new well supply (security of supply)
 - > Plattsville WTF filtration upgrades
 - > Plattsville to Bright Water System interconnection (security of supply)

TOWNSHIP OF NORWICH

Oxford South DWS

- **SERVICING CAPACITY:**
 - > Adequate water supply capacity to 2046
 - > Storage deficit approaching 2026
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Norwich Well 4 WTF filtration upgrades
 - > New water supply (security of supply)
 - > Well 4 WTF Secondary Storage (security of supply)

TOWNSHIP OF SOUTH-WEST OXFORD

Mount Elgin DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2041
 - > Adequate storage capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Mount Elgin WTF optimization to regain plant design capacity
 - > Trunk watermain interconnection to Ingersoll Water System

Beachville DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Minor storage capacity deficit approaching 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > New well supply and standpipe (security of supply)

TOWNSHIP OF SOUTH-WEST OXFORD

Brownsville DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Minor storage capacity deficit approaching 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Water quality improvements
 - > WTF filtration upgrades – security of supply

Dereham Centre DWS

- **SERVICING CAPACITY:**
 - > Adequate water and storage capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Watermain replacements

TOWNSHIP OF EAST ZORRA-TAVISTOCK

Innerkip DWS

- SERVICING CAPACITY:
 - > Adequate water and storage capacity to 2046
- KEY INFRASTRUCTURE PROJECTS:
 - > Watermain replacements

Tavistock DWS

- SERVICING CAPACITY:
 - > Adequate water capacity to 2046
 - > Additional storage capacity needed by 2026
- KEY INFRASTRUCTURE PROJECTS:
 - > New well supply, treatment and additional storage (Well 4)
 - > Tavistock WTF filtration upgrades (manganese)
 - > Water distribution extension/upsizing for growth

Hickson DWS

- > Adequate water and storage capacity to 2046

TOWNSHIP OF ZORRA

Thamesford DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Storage capacity deficit approaching 2026
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Reservoir CT enhancements (reallocation to Storage)
 - > Water distribution system extension – trunk watermain

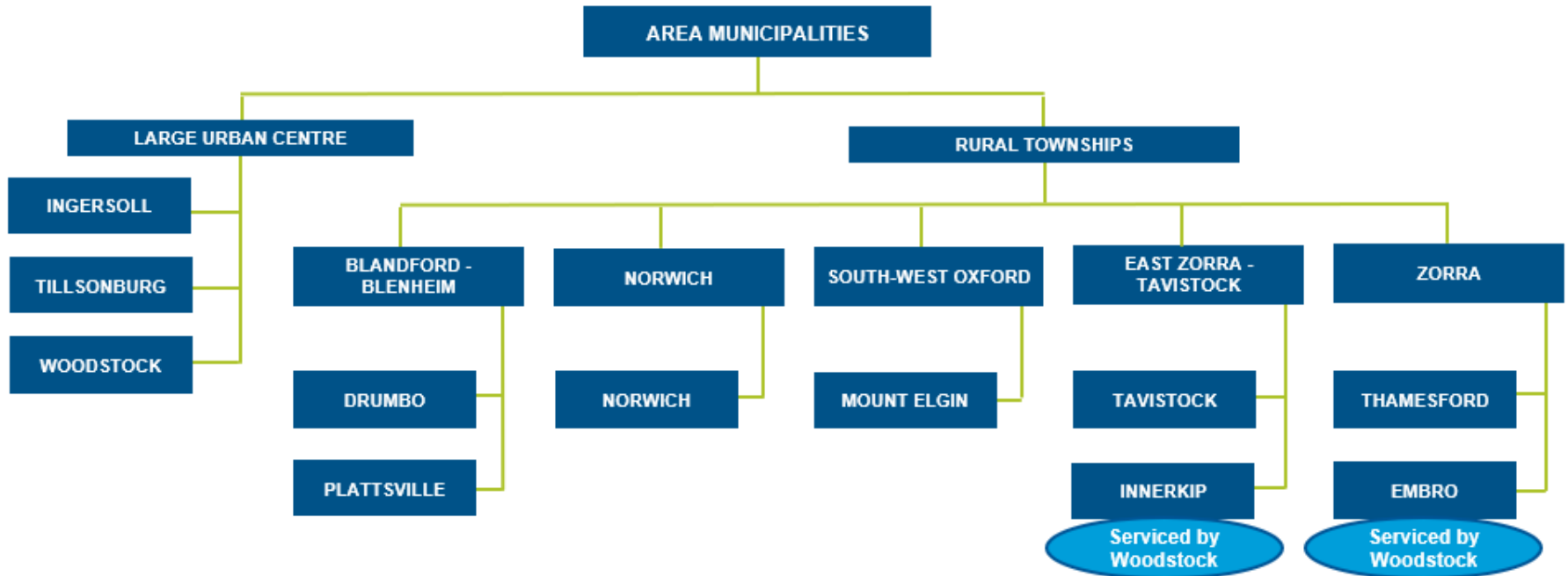
Embro DWS

- **SERVICING CAPACITY:**
 - > Adequate water capacity to 2046
 - > Minor storage capacity deficit beyond 2041
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Reservoir CT enhancements (reallocation to storage)
 - > New storage - Embro WTF

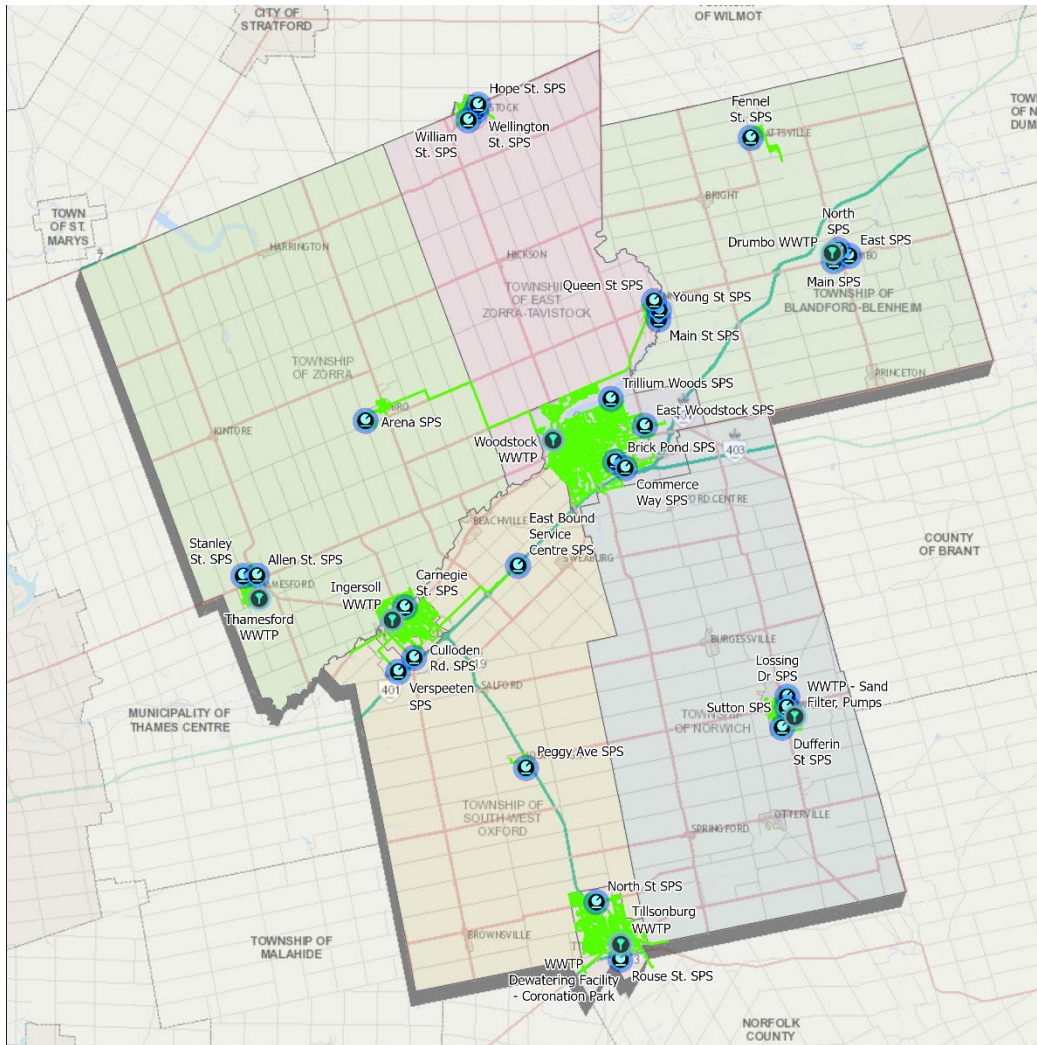
Lakeside DWS

- > Adequate water and storage capacity to 2046

COUNTY WASTEWATER SYSTEMS



EXISTING WASTEWATER INFRASTRUCTURE



WASTEWATER SYSTEM OPPORTUNITIES AND CONSTRAINTS

- Security of conveyance and treatment
 - (i.e., standby power to pumping stations and WWTPs, need for facility resilience due to climate change, etc.)
- System redundancy
 - (i.e., treatment train flexibility, solids handling capacity at WWTP (centrifuges) and lagoons, forcemain twinning, additional trunk sewer redundancy, etc.)
- Impacts due to new areas requiring servicing
 - Collection system expansion
 - (i.e., infill and intensification, new employment lands, secondary units, etc.)
- Wastewater treatment and Sewage Pumping Station operational issues
 - (i.e., wet weather events, odour control, maintenance of discharge criteria etc.)
- Infrastructure capacity limitations
 - Changing regulations and treatment requirements due to capacity limitations of receiving streams (i.e., nutrients, etc.), emerging contaminants
 - Physical capacity limits (i.e., pumping station capacity, sewer and forcemain capacity, treatment train refurbishment, etc.)
- Collection system inflow and infiltration

PREFERRED WASTEWATER SERVICING STRATEGY

- Focus growth and development to Designated Settlement Areas, including Secondary Plan Areas
- Expand existing wastewater collection system (sanitary sewers, sewage pumping stations, forcemains) to service infill areas & employment lands
- Optimize/expand Wastewater Treatment Plant capacity
- Strategic inter-community wastewater system connections
- Sanitary sewer system inflow and infiltration reduction

TOWN OF INGERSOLL

Ingersoll WWTP

- **SERVICING CAPACITY:**
 - Adequate WWTP capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - Wastewater system extension to service South West Industrial Park – trunk sewers, SPS, forcemains including Hwy 401 crossings
 - Wallace Line and Hamilton Road trunk sewers
 - Second trunk sewer crossing of Thames River
 - WWTP headworks upgrade

TOWN OF TILLSONBURG

Tillsonburg WWTP

- **SERVICING CAPACITY:**
 - Planned WWTP capacity expansion to service future growth beyond 2041
- **KEY INFRASTRUCTURE PROJECTS:**
 - WWTP Phase II capacity expansion
 - Sewer trunk replacement/upsizing
 - Stoney Creek trunk sewer rehabilitation
 - Upgrades to John Pound and Rouse St SPS
 - Wastewater system extension to service residential and employment infill – trunk sewers/upsizing, Rouse St SPS upgrades

Woodstock WWTP

- **SERVICING CAPACITY:**
 - > Adequate WWTP capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Trunk sewer inspection and infiltration & inflow reduction
 - > Upgrades to WWTP headworks & Thames Valley SPS
 - > Brick Pond trunk sewer realignment
 - > Wastewater system extension to service infill and new secondary plan areas: East Woodstock, NE Industrial Park, SE Industrial Park and Karn Rd – trunk sewers, SPS (Landsdowne, SPS A), forcemains

TOWNSHIP OF BLANDFORD BLENHEIM

Drumbo WWTP

- **SERVICING CAPACITY:**
 - > Capacity deficit beyond 2031
 - > Planned WWTP capacity expansion required to service on hold development
- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP Phase II capacity expansion
 - > Standby power to SPS locations

Plattsville WWTP

- **SERVICING CAPACITY:**
 - > Adequate WWTP capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP optimization projects
 - > Lagoon biosolids removal and berm repair
 - > Wastewater system expansion to service infill areas (SPS review and forcemain twinning)

TOWNSHIP OF NORWICH

Norwich WWTP

- **SERVICING CAPACITY:**
 - > Capacity deficit approaching 2041
 - > Planned WWTP capacity expansion required to service on hold development and future growth
- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP Phase 2 capacity expansions
 - > Lagoon biosolids removal and berm repair

TOWNSHIP OF SOUTH-WEST OXFORD

Mount Elgin WWTP

- **SERVICING CAPACITY:**
 - > Capacity deficit beyond 2041
 - > Planned WWTP capacity expansion required to service on-hold development and future growth

- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP phase 3 and 4 capacity expansion
 - > Forcemain interconnection to Ingersoll Wastewater System

TOWNSHIP OF EAST ZORRA-TAVISTOCK

Tavistock WWTP

- **SERVICING CAPACITY:**
 - > Capacity deficit beyond 2026
 - > Planned WWTP capacity expansion required to service allocated development, industry capacity request and future growth
- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP capacity expansion
 - > Trunk sewer infiltration & inflow reduction
 - > William St SPS capacity upgrades
 - > Wastewater system expansion/upsizing for growth

Innerkip WW System (to Woodstock)

- **SERVICING CAPACITY:**
 - > Collection system constraints by 2026
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Twin forcemain to Woodstock to allow for community growth

TOWNSHIP OF ZORRA

Thamesford WWTP

- **SERVICING CAPACITY:**
 - > Adequate WWTP capacity to 2046
- **KEY INFRASTRUCTURE PROJECTS:**
 - > WWTP upgrades

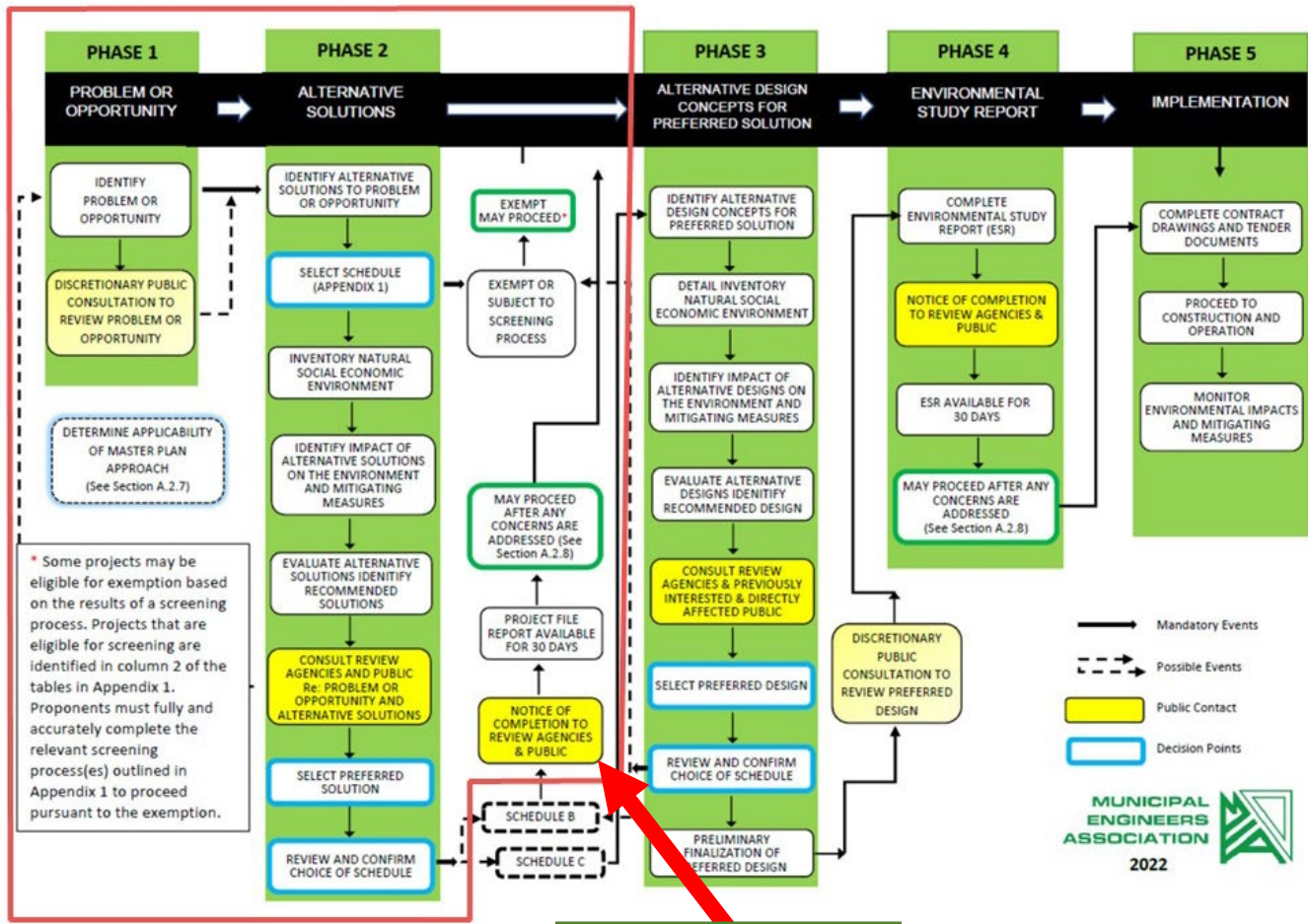
Embro WW System (to Woodstock)

- > Collection system constraints by 2041
- **KEY INFRASTRUCTURE PROJECTS:**
 - > Upgrade SPS to allow for community growth
 - > Upsize or twin forcemain to Woodstock to allow for community growth

CLASS EA MASTER PLAN PROCESS – NEXT STEPS

EXHIBIT A.2. MUNICIPAL CLASS EA PLANNING AND DESIGN PROCESS

NOTE: This flow chart is to be read in conjunction with Part A of the MCEA





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