TOWN OF Tecumseh
ONTARIO · CANADA

Rainfall Event of July 5, 2026

Updated July 21, 2026

July 5, 2026 Rainfall Event

- The Town received up to 105 mm of rain in 15 hours
  - With 74 mm falling in 2-hours (8:00 pm to 10:00 pm)
- At the peak of the storm it registered over a 1:100 Year Storm Event

St. Pierre Street north of Clapp Street @ 10:30pm

July 5, 2026 Rainfall Event

- Dillon Drive west of Lesperance Road @ 10:30pm

July 5, 2026 Rainfall Event

- Lesperance Road north of Evergreen Drive @ 10:30pm

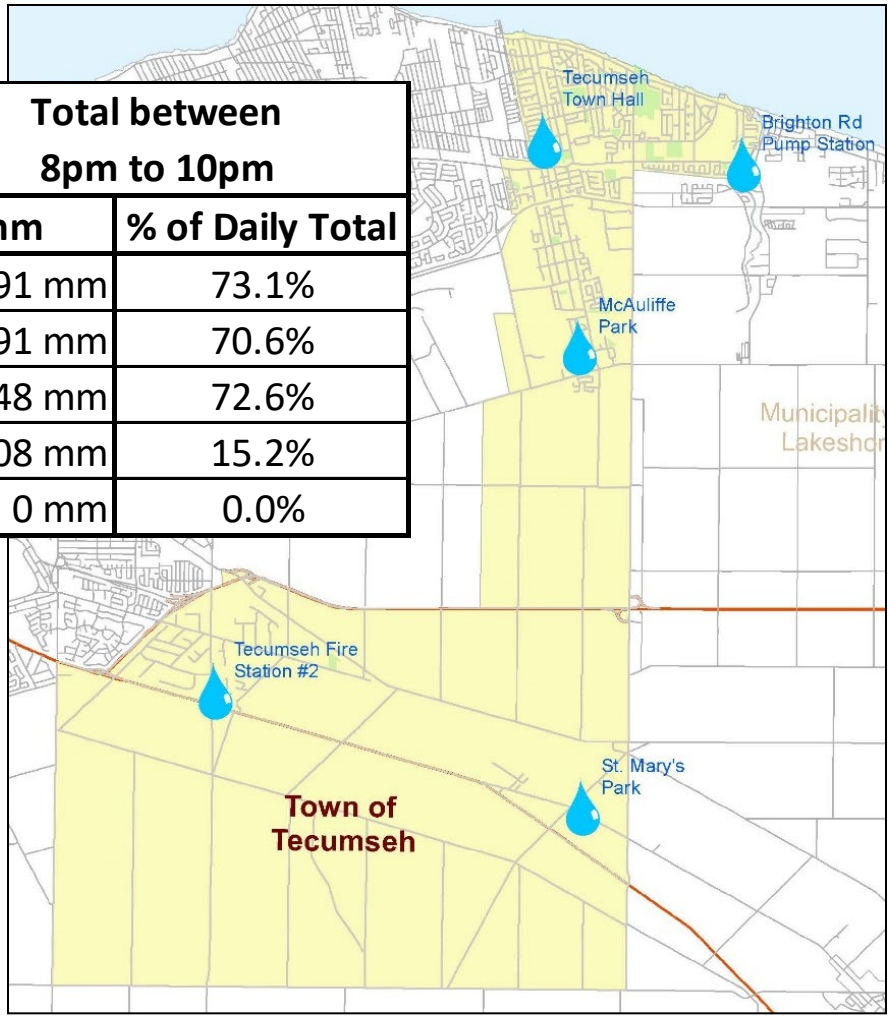
July 5, 2026 Rainfall Event

- Lakewood Park Stormwater Channel @ 10:30pm

July 5, 2026 Rainfall Event

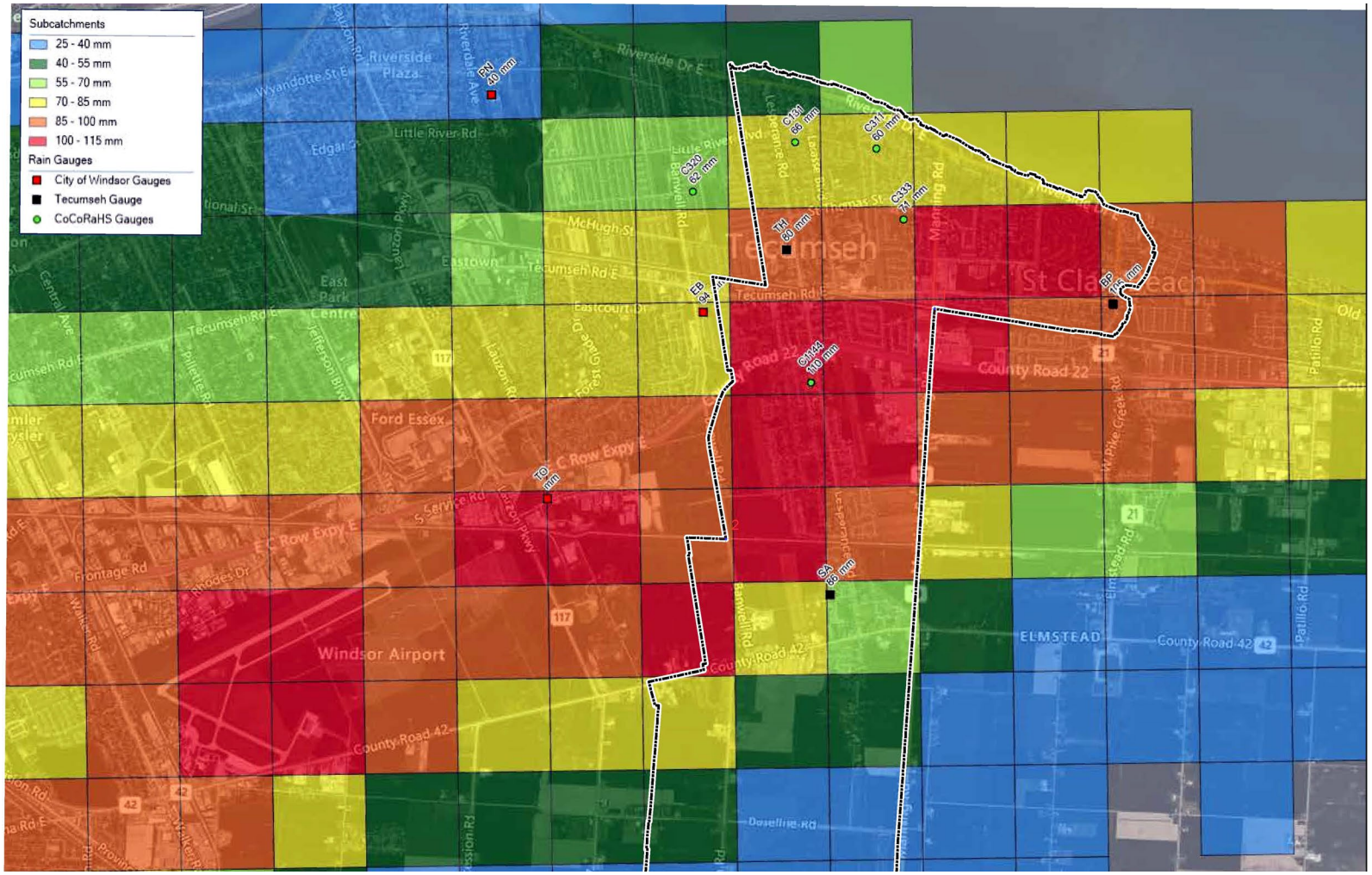
- Tecumseh's Rain Gauges

Rain Gauge Location	Daily Total 9am to Midnight	Total between 8pm to 10pm	
		mm	% of Daily Total
Town Hall	79.25 mm	57.91 mm	73.1%
Brighton Pump Station	104.65 mm	73.91 mm	70.6%
McAuliffe Park	86.11 mm	62.48 mm	72.6%
Oldcastle Fire Station 2	33.53 mm	5.08 mm	15.2%
Maidstone St. Marys	28.45 mm	0 mm	0.0%



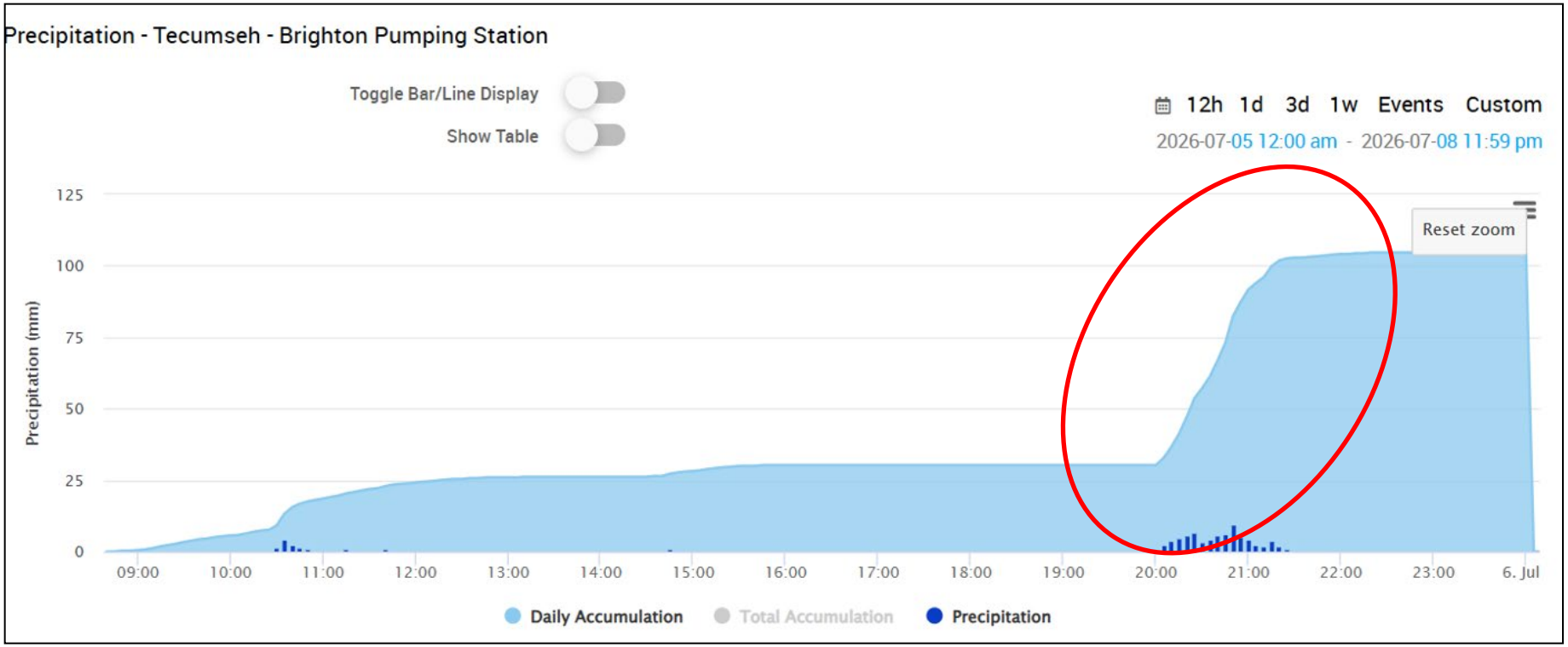
July 5, 2026 Rainfall Event

- NEXRAD DPR Radar Rainfall Data



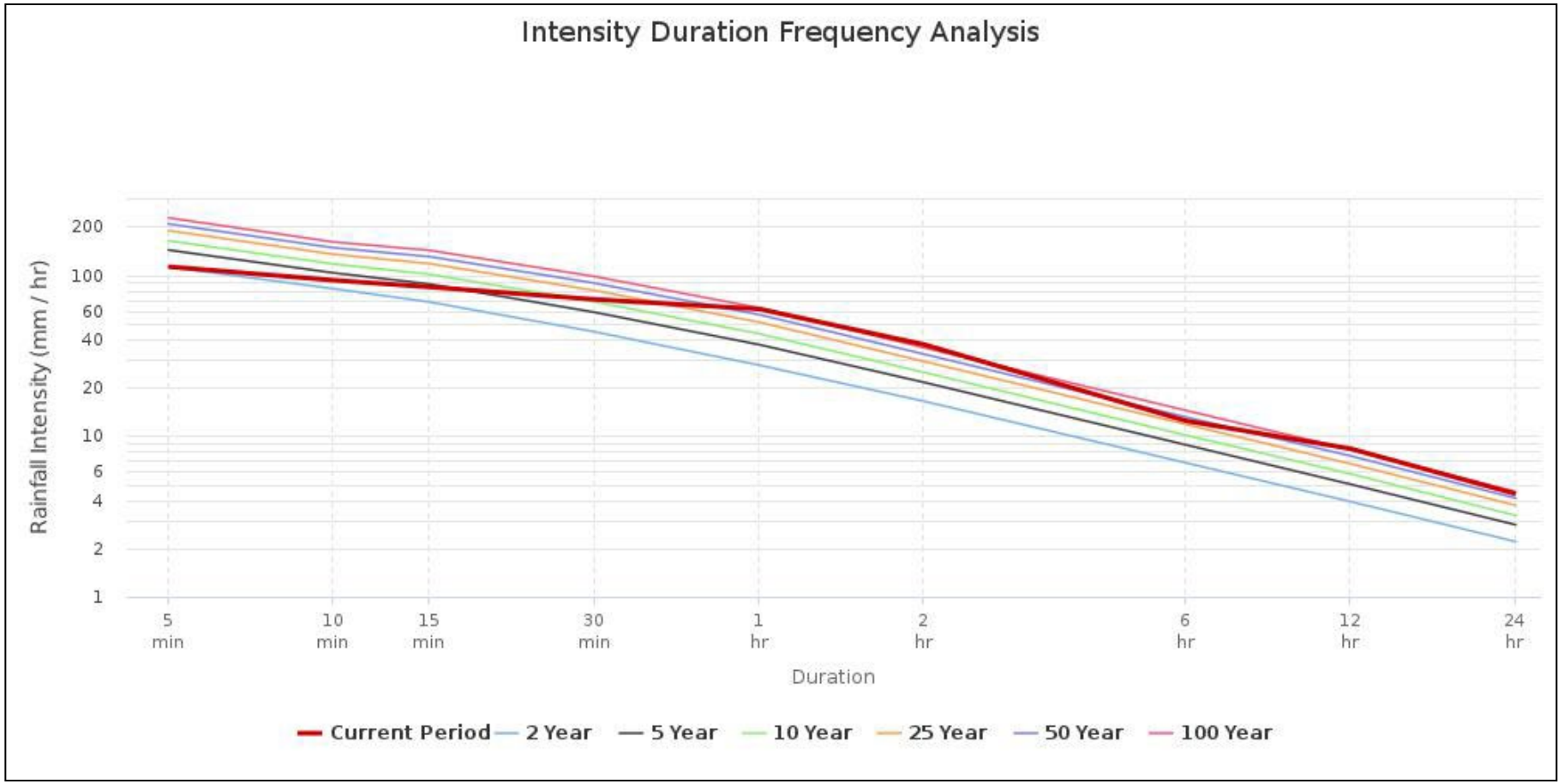
July 5, 2026 Rainfall Event

- Brighton Pumping Station Rain Gauge – Precipitation
- Daily Total: 104.65mm
- 8pm-10pm Total: 73.91mm (70.6% of Daily Total)



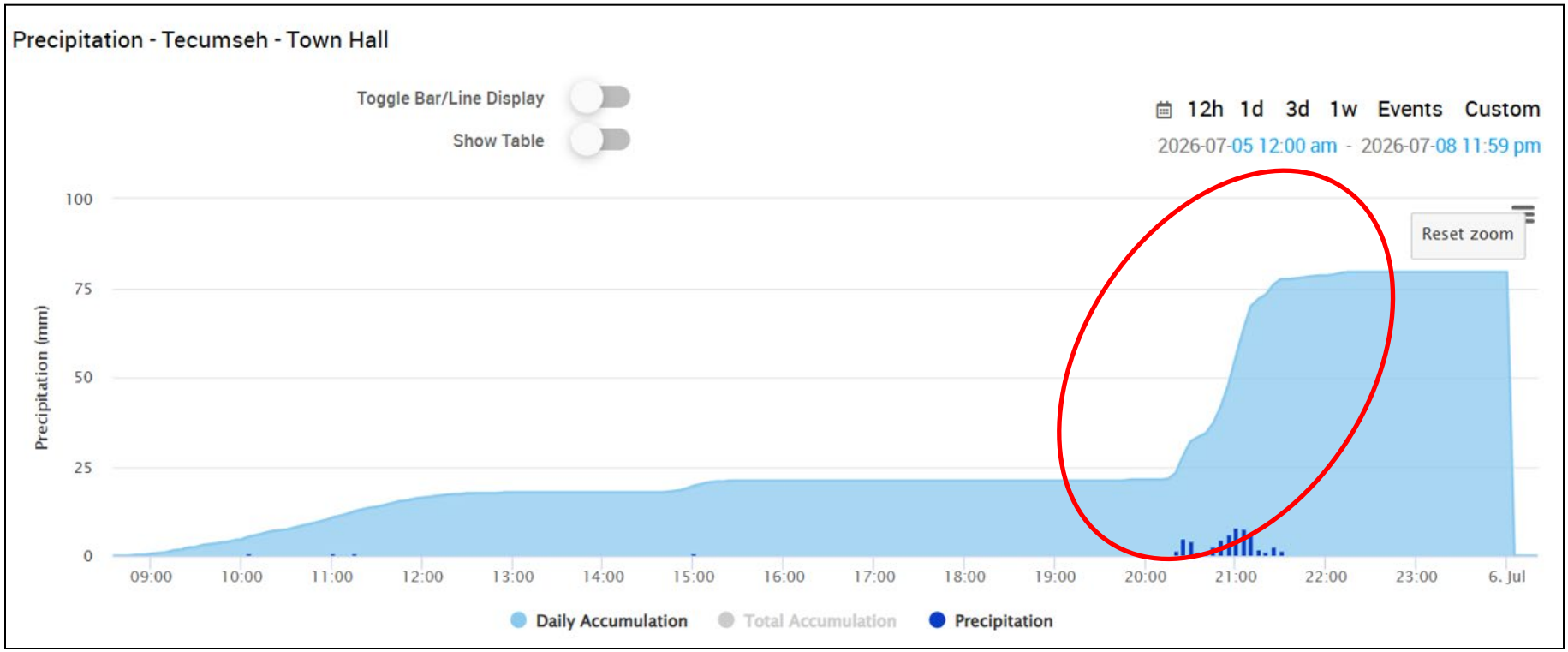
July 5, 2026 Rainfall Event

- Brighton Pumping Station Rain Gauge – IDF Curve: **> 100 Year**



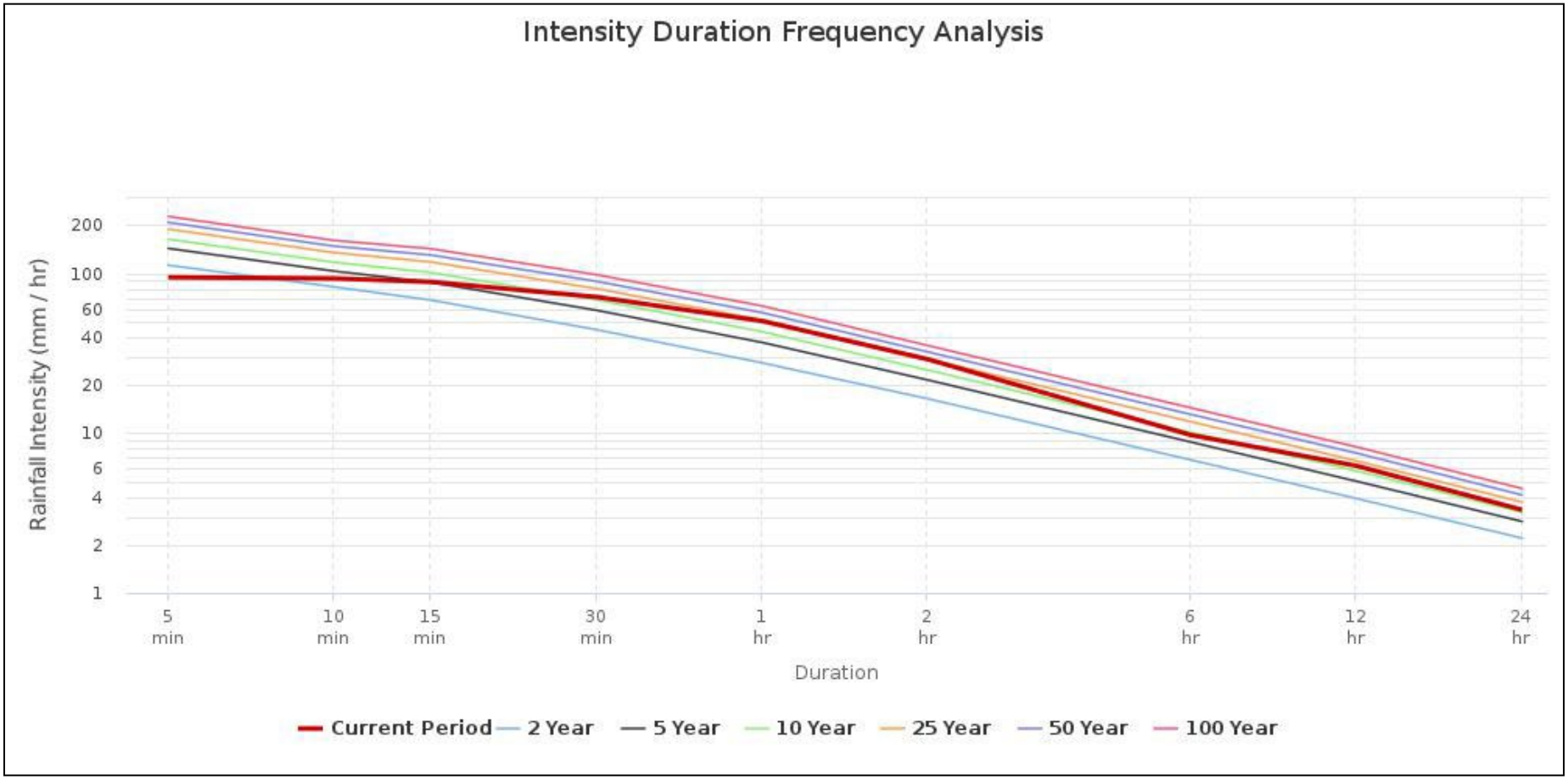
July 5, 2026 Rainfall Event

- Town Hall Rain Gauge – Precipitation
- Daily Total: 79.25mm
- 8pm-10pm Total: 57.91mm (73.1% of Daily Total)



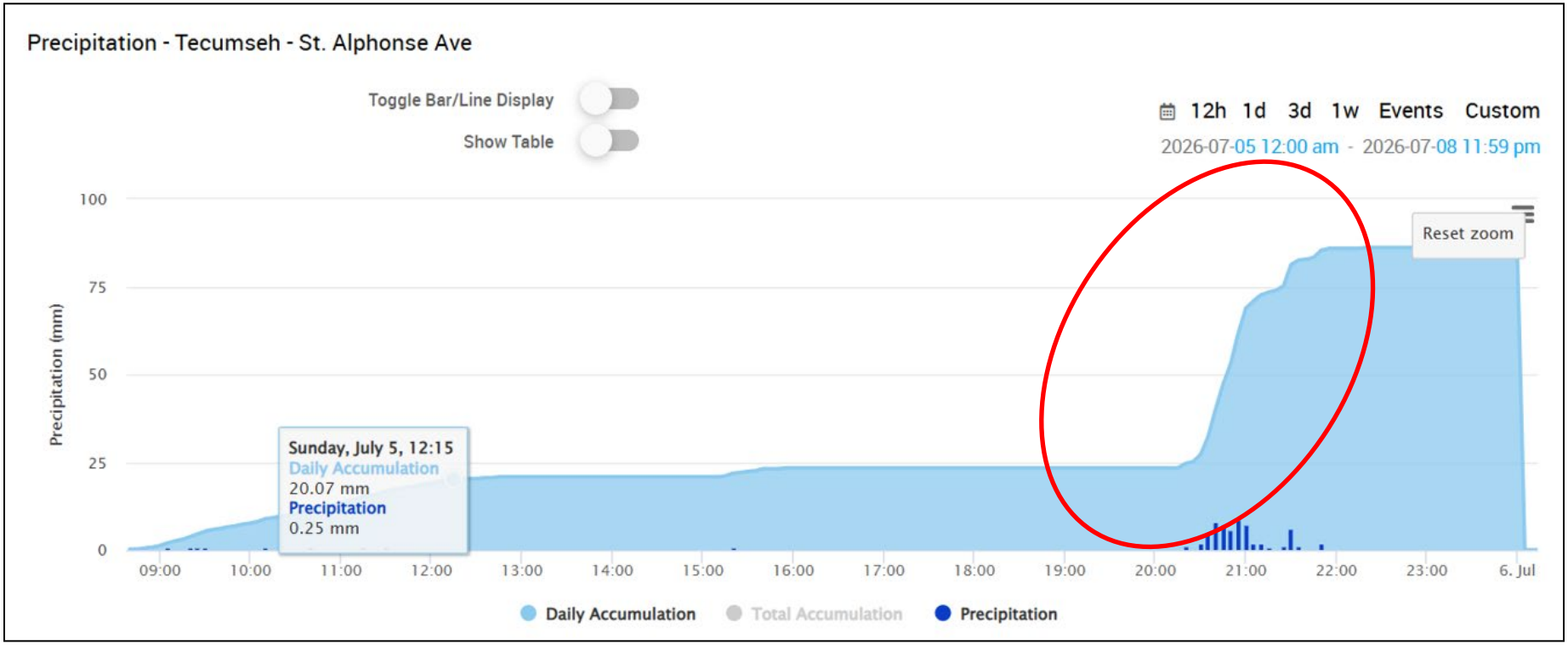
July 5, 2026 Rainfall Event

- Town Hall Rain Gauge – IDF Curve: **25 Year**



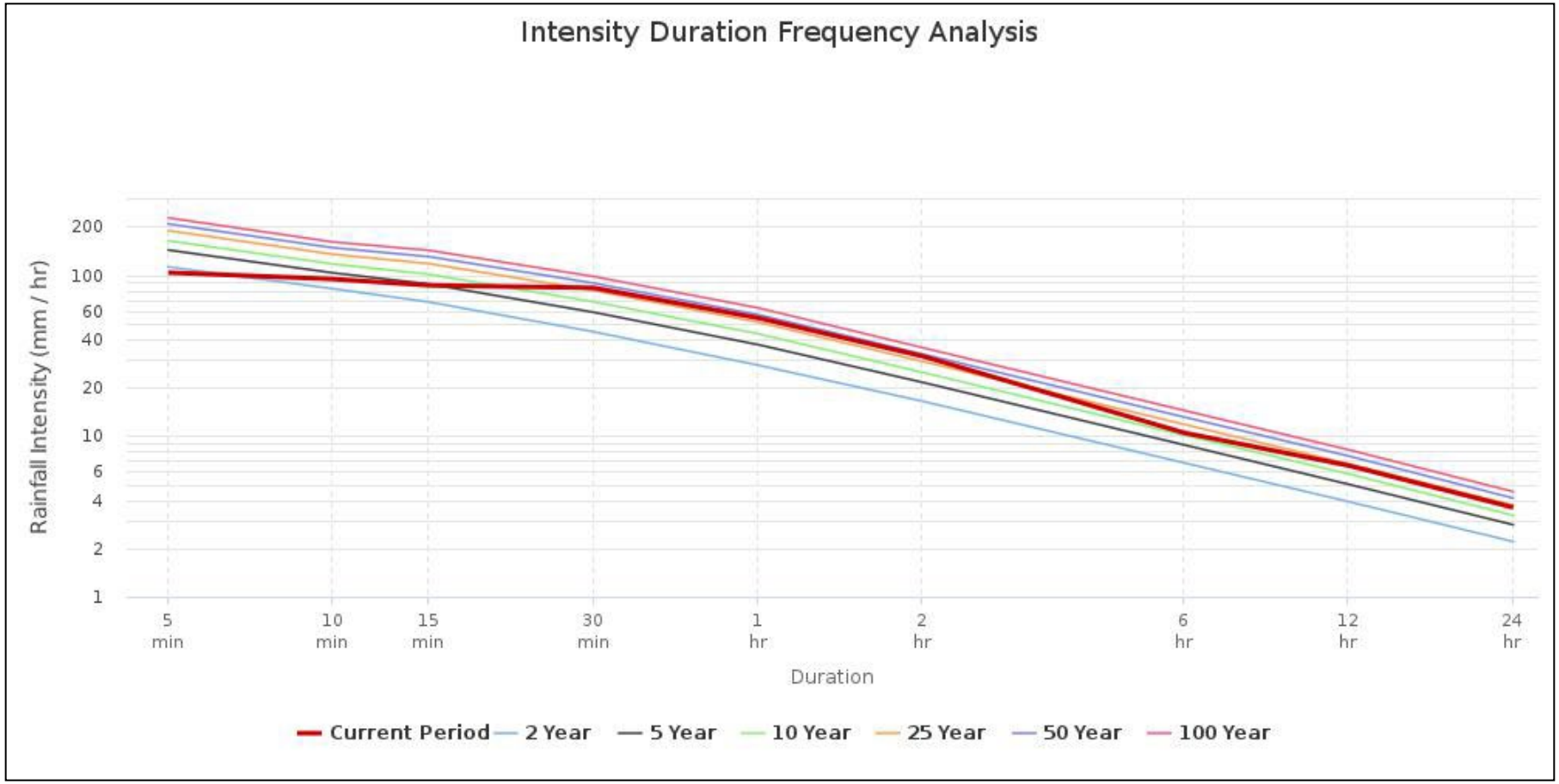
July 5, 2026 Rainfall Event

- McAuliffe Park Rain Gauge – Precipitation
- Daily Total: 86.11mm
- 8pm-10pm Total: 62.48mm (72.6% of Daily Total)

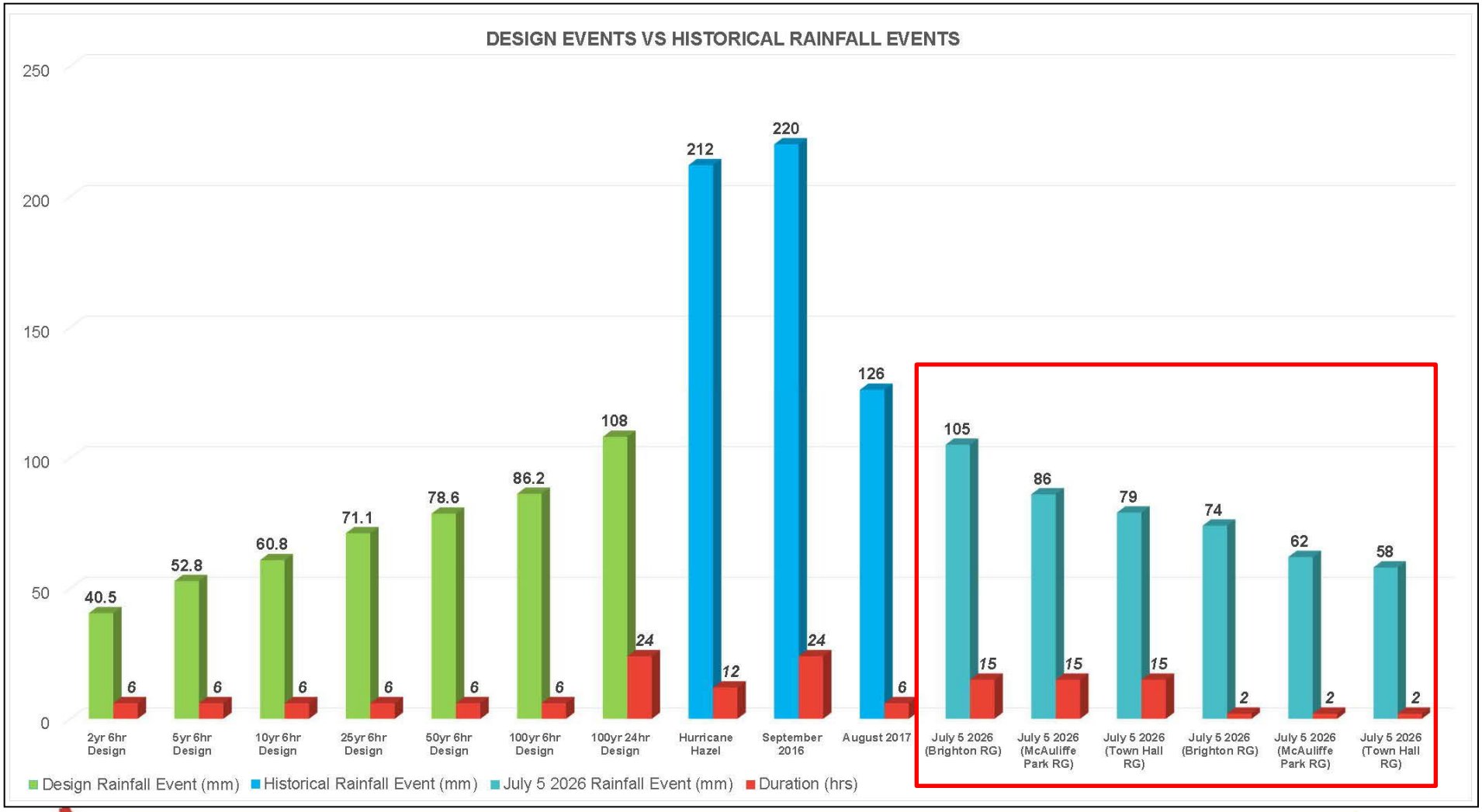


July 5, 2026 Rainfall Event

- McAuliffe Rain Gauge – IDF Curve: **50 Year**



July 5, 2026 Rainfall Event



July 5, 2026 Rainfall Event

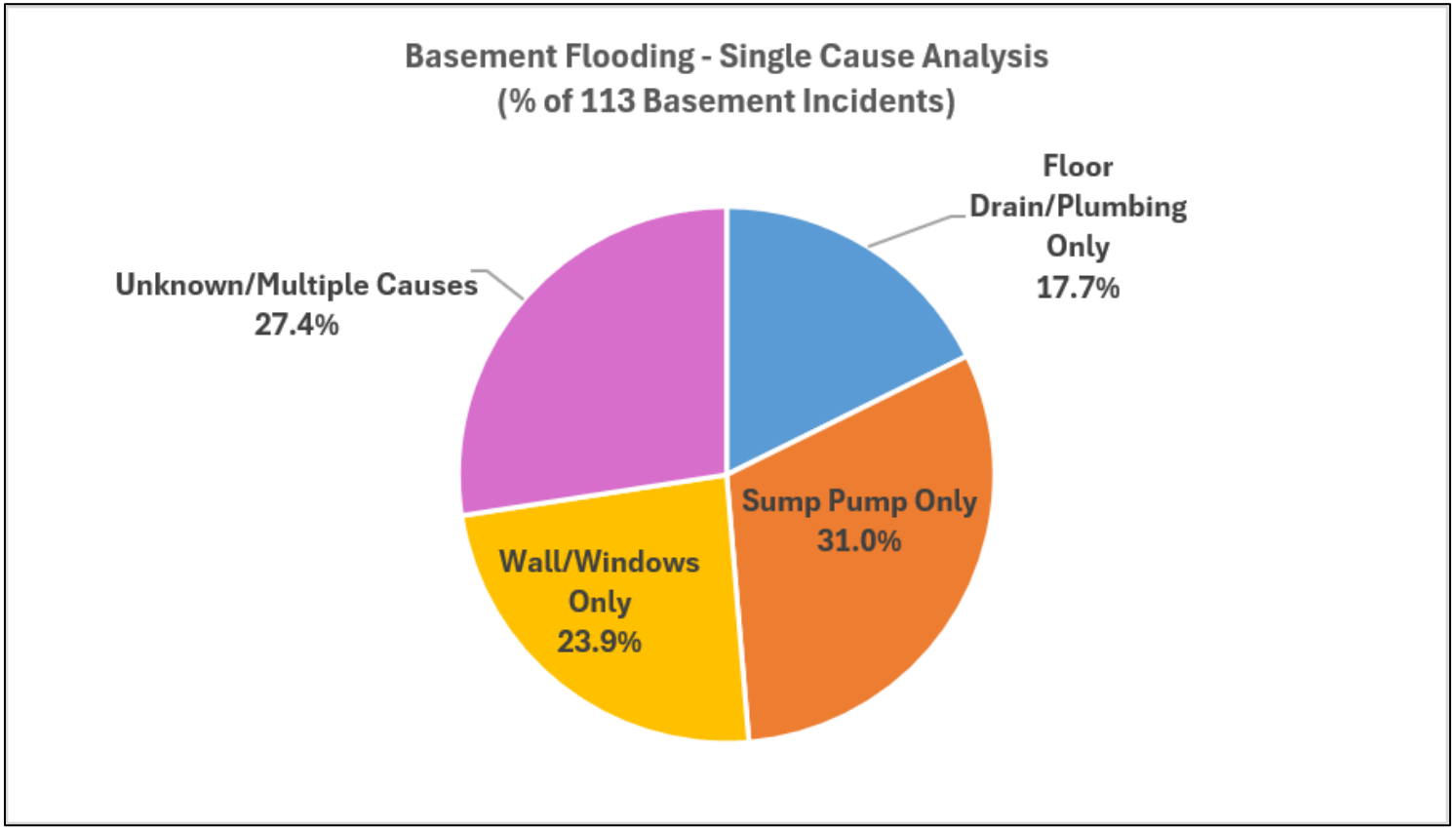
- An intense, high volume of rain fell in 2-hours on July 5th.
- Certain areas of Town received between 58mm and 74mm of rain within a 2-hour period, translating to a 1:25 year to over a 1:100 year storm event.
- The rainfall exceeded the capacity of the storm sewer system which resulted in surface and road flooding throughout the Town.
- Storm water flows entered into the sanitary system which resulted in the system surcharging.
- Street flooding is an integral part of the design for storm sewer systems.
- Designing infrastructure larger than a 1:2 or 1:5 year storm event is unfeasible and impractical.

Operations during the Rainfall Event

- All storm pumping stations were on, operational & pumping at capacity
- All sanitary pump stations were on, operational & pumping at capacity
- No blockages in storm & sanitary sewers
- Storm & sanitary sewers overwhelmed
- Public Works staff on-site ensuring pumps were operational & clear of debris

Flooding Survey Data

- As of **July 21, 2026** the Town received a total of 201 flooding incidents from 146 Flooding Survey Submissions. These included flooding of roads, yards, and basements. Of the 146 Submissions a total of 113 flooded basements were identified

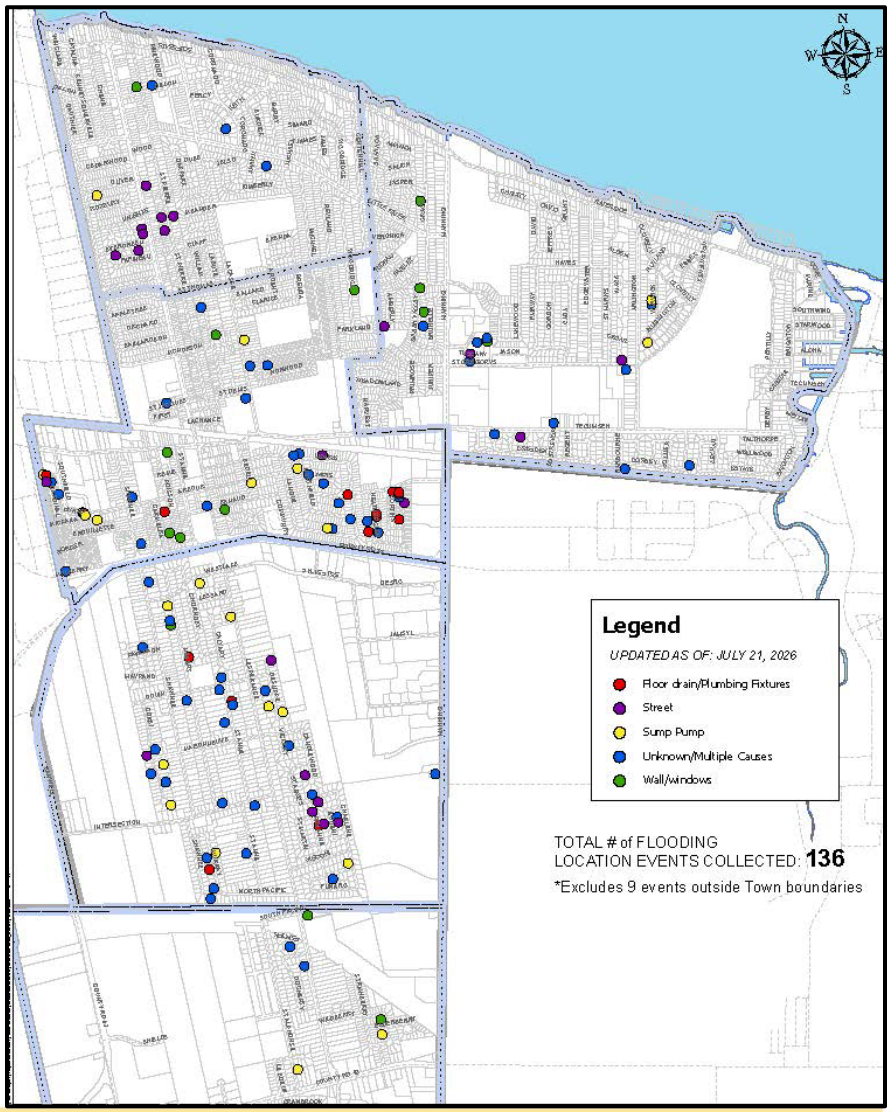


Locations of Basement Flooding

- Flooding of basements occurred primarily north of CR 42

- Basement flooding causes:
  - Water entering through walls & windows
  - Failed & overwhelmed residential sump pumps
  - Surcharged sanitary sewers

- Of the **113** reports of flooded basements:
  - **20** – Floor drain/plumbing
  - **35** – Sump pump failures
  - **27** – Wall or windows
  - **31** – Were of unknown/multiple causes



History of Significant Rainfall Events

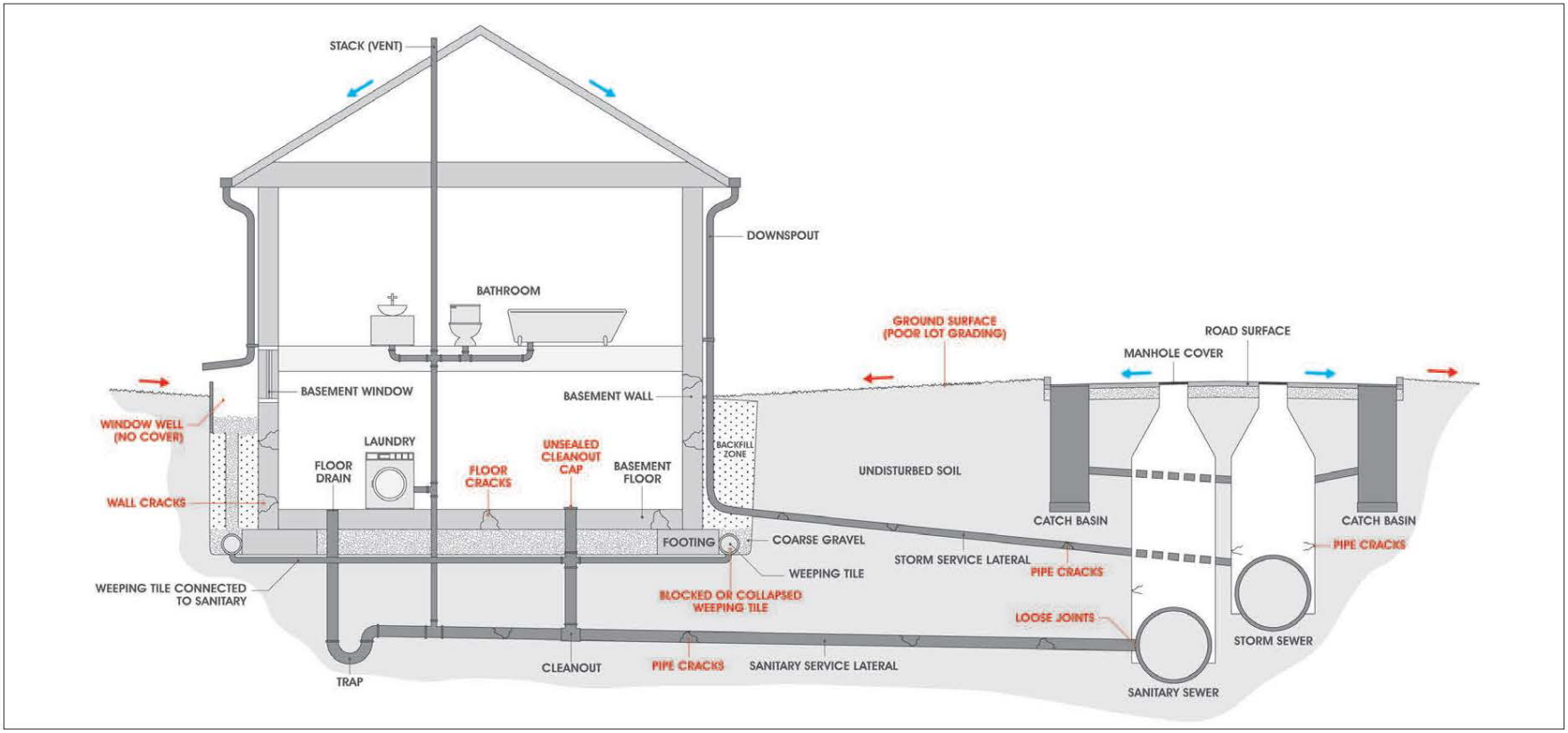
Date of Event	Total Rainfall Event	Comments
Sep-81	89.0 mm	Basement flooding reported in St. Clair Beach (SCB), Old Tecumseh and Tecumseh Hamlet
Jul-83	82.0 mm	Basement flooding in SCB
Feb-85	34.6 mm*	Basement flooding in SCB
Feb-90	70.6 mm	Basement flooding in SCB
Jun-10	89.8 mm	Basement flooding in SCB, Old Tecumseh and Tecumseh Hamlet
Sep-11	86.0 mm	Basement flooding in SCB
Jul-13	70 mm (in 4 hrs)	Basement flooding in Tecumseh Hamlet
Sep-16	270 mm	Basement flooding in SCB, Old Tecumseh and Tecumseh Hamlet
Aug-17	126 mm	Basement flooding in SCB, Old Tecumseh and Tecumseh Hamlet
Aug-20	110.7 mm	Surface and street flooding in Oldcastle
Jul-21	89.4 mm	Basement flooding in SCB, Old Tecumseh and Tecumseh Hamlet. Street flooding in Oldcastle
Jul-26	105 mm	Basement flooding in SCB, Old Tecumseh and Tecumseh Hamlet

*Rainfall recorded at Windsor Airport – actual rainfall in SCB likely much higher

Common Causes of Basement Flooding

- There are a variety of reasons basements flood during heavy rainfall events, such as:
  - Storm water overwhelming the sump pump;
  - Sump pump failure due to power failure, overuse or malfunction;
  - A blocked connection between the residence and the main sewer in the street;
  - A back-up of wastewater (and storm water) through the sanitary sewer system (via. floor drain);
  - Through cracks, holes, etc. in basement walls or floors;
  - Overland flow through openings in the residence.

How Flooding Can Occur in a Home



What to look for in this diagram

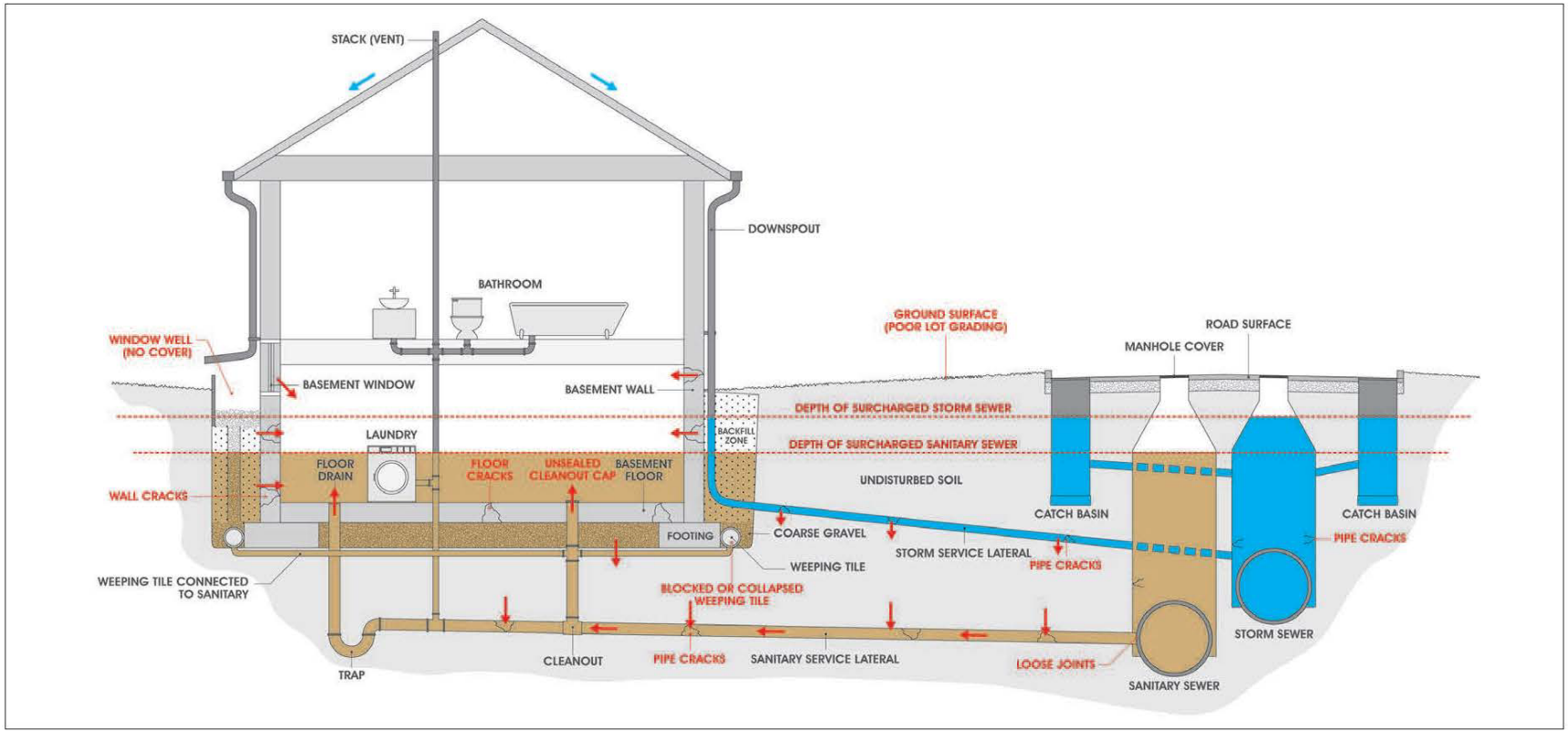
This diagram shows a home that is at risk of basement flooding from infiltration flooding, overland flooding and sewer backup. In this diagram:

- The cracks in the foundation wall and basement floor are unsealed.
- Downspouts are connected to the municipal sewer system or are discharging too close to the foundation.
- The yard is improperly graded and sloped toward the home.
- The weeping tiles are connected to the sanitary sewer lateral.
- The weeping tiles have not been maintained and are damaged.
- There is no backwater valve in place.
- The sewer laterals have not been maintained, are cracked and have loose joints.
- The storm sewer lateral has not been severed and is prone to exfiltration.
- The backfill area beside the foundation wall is uncapped.
- The sewer cleanout is uncapped and unsealed.
- There is no window well cover in place.

Causes of Sanitary Sewer Back-ups

- An excessive amount of inflow of storm water into the sanitary sewer system that causes the system to be overwhelmed and surcharged:
  - Infiltration into leaky sewers (public and private)
  - Inflow into sanitary manholes located on flooded roadways or low-lying areas
  - Inflow through cross connections of roof downspouts to sanitary sewers
  - Inflow through cross connections in homes (floor drains and foundation drains)
  - Foundation drains being directly connected to the sanitary sewer

Sewer Backup



What to look for in this diagram

This diagram shows how sewer backup can enter a home. In this diagram:

- The sanitary sewer is surcharging and pushing sewage back into the home through the sanitary sewer lateral.
- Sewage is entering the basement through plumbing fixtures, including the basement floor drain and the unsealed sewer cleanout.
- Because the weeping tiles are connected to the sanitary sewer, sewage has been forced into the weeping tiles and is infiltrating into the basement through cracks in the basement walls.
- In this instance, the municipal storm sewer is also surcharging, and forcing storm sewage into the home`s storm sewer lateral. High pressure storm sewage is exfiltrating from the storm sewer lateral and entering the sanitary sewer lateral, thereby increasing the amount of sewage that enters the basement.
- The home`s sanitary sewer lateral is also in disrepair, and water is entering through cracks and loose joints.

Actions by Homeowners to Reduce the Risk of Basement Flooding

- Ensure ground and pavement surfaces around residence slope away from the building
- Properly install and maintain sump pumps
- Remove cross connections between sump pump, sanitary pipes or floor drains
- Install & maintain backwater valve or a sewage ejector pump
- Disconnect eaves trough downspouts from storm/sanitary piping
- Ensure there are no cracks in the storm water piping around the home
- Ensure there are no cracks or holes in the basement walls or floors that may allow water to enter the basement
- Provide backup power supply to the sump pump
- **Visit the Town's website for further information (www.Tecumseh.ca)**

Flood Prevention Subsidy Program

- The Town offers a financial subsidy to residents for:
  - Backwater Valve – 80% up to $800
  - Foundation Drain Disconnection – 50% up to $1,060

Number of Applications (as of July 6, 2026)		
Year	**Backwater Valve**	**Foundation Drain**
2012-2015	8	0
2016	263	31
2017	409	43
2018	68	6
2019	66	10
2020	19	11
2021	6	1
2022	18	1
2023-2026	6	0
Totals	**863**	**103**
Est. Value	**$690,400**	**$109,180**

Why Road Flooding Occurs During Heavy Rainfall Events

- Storm sewer systems are typically designed for a 1:2 Year or 1:5 Year storm event (Approx. 40.5mm and 52.8mm of rainfall over 6-hrs, respectively), based on historical rainfall patterns in the region.
- During more intense storms, rainfall can exceed the capacity of the storm sewer system, causing temporary ponding on roads.
- Roads are designed to safely convey and temporarily storm stormwater during major rainfall events, helping protect homes and buildings from flooding.
- Most newer subdivisions include controlled road storage of up to 0.3m (1-ft) as part of their approved stormwater management design.

Ensuring New Development Does Not Increase Flooding Risk

- Any proposed developments are required to implement stormwater management controls to ensure there are no adverse impacts
  - Allowable release rate based on the capacity of the receiver (sewer/drain/creek)
  - Temporary on-site storage
  - Have regard to the 1:100 Year Rain Event
- Designed by Professional Engineers
  - Provincial Guidelines
  - Windsor/Essex Region Stormwater Management Standards (2024)
- The Town's Stormwater Master Plans and Modelling are essential tools
- Private stormwater facilities:
  - Surface storage in parking lots or swales
  - Underground storage chambers
  - Stormwater ponds (dry or wet)

Town Flood Mitigation Strategy

- Outlined in Council Report PWES-2018-17
- Multifaceted plan to reduce the impact and lessen the extent of basement flooding associated with severe rainfall events

1) Completion of the Town's Development Manual
2) Town-wide Site Plan Control
3) Mandatory Sewage Ejector Pump Installations on New Homes
4) Completion of Storm Drainage Master Plans
5) Completion of the Windsor/Essex Region Stormwater Management Standards
6) Completion of a Regional Climate Change Strategy (Climate Adaptation Plan)
7) Installation of a Regional Weather Station Network (Rain Gauges)
8) Completion of a Pump Station Emergency Response Plan

Town Flood Mitigation Strategy…Cont'd

9) Completion of a Shoreline Management Plan
10) Sanitary Sewer Rehabilitation (I&I Removal)
11) Increase in Sanitary Sewer Storage Capacity
12) Continued Flow Monitoring and Sanitary Sewer Modelling
13) Public Education and Awareness Program on Managing Risk of Basement Flooding
14) Mandatory Downspout Disconnection Program
15) Mandatory Foundation Drain Disconnection & Storm Sump Pump Installation Subsidy Program
16) Backwater Valve Installation Subsidy Program
17) Sewage Ejector Pump Installation Subsidy Program
18) Creation of an annual inspection program for private stormwater management facilities

Town Investments & Commitment

- The Town has made significant investments in stormwater and sanitary infrastructure, including the installation of major trunk sewers and reconstruction of critical pumping stations.

- To support long-term planning and sustainable growth, the Town has completed a series of comprehensive studies, including:
  - Stormwater Master Plans;
  - Water & Wastewater Master Plan;
  - Sanitary Model Recalibration and Basement Flood Risk Mitigation Study; and
  - Localized Municipal Class Environmental Assessments.

Town Investments & Commitment

- These studies have provided the technical foundation for identifying and prioritizing recommended capital infrastructure projects.

- As detailed in Appendix A to this presentation, the Town has undertaken stormwater and sanitary studies and capital projects from 2004 to 2028, representing a total investment of **$155.03M.**

- The Town was also successful during this period in securing grant funding from the Provincial and Federal governments in the amount of **$58.06M.** Refer to Appendix B for a full listing.

Closing Statements

- The Town's past actions, proposed modifications and infrastructure improvements are significant; however, they alone will not guarantee that a basement flooding event will never occur again.
- We continue to encourage residents to take action to inspect & modify their properties to reduce the impact of heavy rainfall events.
- Visit the Town's website (www.Tecumseh.ca) for further information on the Flood Prevention Subsidy Program, as well as publications on 'Reducing Basement Flooding' and how to 'Protect your Home from Basement Flooding'.
- The combined effect of all actions (public & private) will serve to reduce the impact of heavy rainfall events and lessen the extent of basement flooding associated with these events.

Questions/Discussions

Appendix A
Town Investments & Commitment

Town Investments & Commitment

- **The following list of storm and sanitary studies/projects spanning from 2004 to 2028 total $155.03M**

- 2004 Town of Tecumseh I&I Control Study (**$0.2M**)
- 2008 County Road 22 Relief Sanitary Sewer & Outlet (**$2.7M**)
- 2008 Water & Wastewater Master Plan (**$0.2M**)
- 2008-2009 Brighton Road Storm Pump Station (**$5.6M**)
- 2009, 2015 & 2021 Water & Wastewater Rate Studies (**$0.06M**)
- 2010 Wastewater Assessment & Mitigation Plan *
- 2010-2011 Sanitary Sewer Assessment (**$0.1M**)
- 2011-2013 Sanitary Sewage Collection System Improvements, Class EA (**$0.25M**)

* Costs associated to implement this plan are accounted for in their individual studies and projects

Town Investments & Commitment… Cont'd

- 2012 Lesperance Road Twin Sanitary Sewer (**$0.25M**)
- 2012-2021 Flood Prevention Subsidy Program (**$0.8M**)
- 2012 Emergency Backup Power at Storm Pump Stations (**$1.1M**)
- 2013-2014 Manning Road Storm Pump Station (**$8.6M**)
- 2014 Lakewood Park Sanitary Pump Station & Storage Trunk (**$4.3M**)
- 2014 Lakewood Park Storm Channel (**$0.7M**)
- 2014-2018 Oldcastle Storm Sewer Replacements (**$2.6M**)
- 2014-2021 Municipal Drain repairs and improvements (**$6.0M**)
- 2015 Update to the Region's Intensity-Duration-Frequency (IDF) Curves (**$0.01M**)
- 2015-2021 Miscellaneous Storm Pump Station Repairs (**$0.3M**)
- 2016 Pump & Metering Station Condition Assessments (**$0.1M**)

Town Investments & Commitment… Cont'd

- 2016-2021 Upper Little River Watershed Drainage and Stormwater Management Master Plan (**$0.06M**)
- 2017-2019 Windsor/Essex Region Stormwater Management Standards (**$0.01M**)
- 2017-2019 Water & Wastewater Master Plan Update (**$0.15M**)
- 2017-2019 Storm Drainage Master Plan (**$0.65M**)
- 2018 Flood Mitigation Strategy *
- 2018 Weather Station Network installation (**$0.03M**)
- 2018 Cedarwood Sanitary Pump Station (**$1.0M**)
- 2018-2019 Sanitary Sewer Rehabilitation (I&I Removal) (**$3.6M**)
- 2018-2019 Sanitary Manholes: Rain Shields (**$0.1M**)
- 2018-2021 Manning Road Improvements Phase 2 (**$5.6M**)

* Initiatives completed in-house

Town Investments & Commitment… Cont'd

- 2019 Flood Response Plan *
- 2019-2021 Ongoing Lake Flooding Action Group Meetings *
- 2019-2021 Oldcastle Stormwater Management Plan (**$0.45M**)
- 2019-2024 Sanitary Sewer Model Update (**$0.45M**)
- 2019-2021 Endorsement of Service Lines Warranties of Canada Program *
- 2020 Tecumseh Road Sanitary Sewer (**$2.2M**)
- 2020 Lake Flood Response Action Plan *
- 2020 Lake Flooding Emergency Flood Mitigation Works (**$0.4M**)
- 2020-2021 Shoreline Management Plan (**$0.4M**)
- 2020-2021 Stormwater Rate Study (**$0.04M**)
- 2021 Purchase of High Water Rescue Vehicle (**$0.21M**)

* Initiatives completed in-house

Town Investments & Commitment… Cont'd

- 2021-2022 Turkey Creek Watershed – Hydrologic & Hydraulic Modelling (**$0.04M**)
- 2021-2022 Tecumseh Road Storm Sewer & Road Improvements (**$4.0M**)
- 2021-2028 Disaster Mitigation & Adaptation Fund Projects (3 Storm Pump Stations) (**$35.0M**)
- 2022-2025 Tecumseh Hamlet Secondary Planning Area, Municipal Class EA & Functional Servicing Report (**$1.3M**)
- 2022-2026 Little River Pollution Control Plant, Municipal Class EA (**$0.33M**)
- 2022-2028 Manning Road Secondary Plan & East Townline Drain Regional Stormwater Management (**$35.0M**)
- 2024-2025 Tecumseh Hamlet Trunk Sanitary and Trunk Watermain (**$15.0M**)
- 2024-2026 Urban Forestry and Naturalization Management Plan (**$0.27M**)

* Initiatives completed in-house

Town Investments & Commitment… Cont'd

- 2024-2028 Boulevard Street Trees (**$0.63M**)
- 2025-2028 Cedarwood Sanitary Pumping Station (**$9.0M**)
- 2026-2027 Lanoue/Lemire Area, Sanitary I&I Monitoring Program (**$0.14M**)
- 2026-2027 Gouin Stormwater Management Pond Initial Design (**$0.1M**)
- 2026-2027 Oldcastle Stormwater Management Plan, Property & Easement Acquisition (**$5.0M**)
- Continued Education on Basement Flooding Prevention *
- Continued Flow Monitoring of Sanitary Sewer System *
- All new subdivisions on sewage ejector pumps *

* Initiatives completed in-house

Appendix B
Grant Funding Successfully Secured

Grant Funding Successfully Secured: $58.06M

- Municipal Infrastructure Investment Initiative (MIII) (**$4.5M**)
  - 2008 Brighton Road Storm Pump Station
- Canada-Ontario Municipal Rural Infrastructure Fund (COMRIF) (**$6.13M**)
  - 2012 Manning Road Storm Pump Station
- Municipalities For Climate Innovation (MCIP) (**$0.175M**)
  - 2017-2019 Storm Drainage Master Plan
- Ontario Community Infrastructure Fund (OCIF) (**$1.3M**)
  - 2018-2019 Sanitary Sewer Rehabilitation (I&I Removal)

Grant Funding Successfully Secured

- Canada Water Wastewater Fund (CWWF) (**$1.7M**)
  - 2018-2019 Sanitary Sewer Rehabilitation (I&I Removal)
- National Disaster Mitigation Program (NDMP), Intake 5 (**$0.15M**)
  - 2019-2021 Oldcastle Stormwater Master Plan
- Ontario Community Infrastructure Fund (OCIF) (**$3.03M**)
  - 2021 Manning Road Improvements, Phase 2
- Disaster Mitigation & Adaptation Fund (DMAF), Intake 3 (**$10.7M**)
  - 2021-2028 Scully, St. Marks, P.J. Cecile Storm Pump Stations

Grant Funding Successfully Secured

- Ontario Community Infrastructure Fund (OCIF) (**$11.0M**)
  - 2021-2028 Scully, St. Marks, P.J. Cecile Storm Pump Stations
- Canada Community Building Fund (CCBF) (**$2.0M**)
  - 2021-2028 Scully, St. Marks, P.J. Cecile Storm Pump Stations
- Ontario Community Infrastructure Fund (OCIF) (**$1.85M**)
  - 2021-2022 Tecumseh Road Storm Sewer & Road Improvements
- Canada Community Building Fund (CCBF) (**$0.4M**)
  - 2022-2025 Centennial & Woodbridge Watermain Replacement Project (storm sewer related costs)

Grant Funding Successfully Secured

- Housing Enabling Water System Fund (HEWSF) (**$15.12M**)
  - 2024-2025 Tecumseh Hamlet Trunk Sanitary and Trunk Watermain