



DRAINAGE INFRASTRUCTURE UPDATE

PUBLIC WORKS COMMITTEE

April 12, 2022

Outline

- **Overview of drainage maintenance**
- **Types of right-of-way drainage issues**
- **Potential capital project timeline**
- **High priority drainage projects**

What is Drainage Maintenance?

- COWS owns, operates and maintains all of the pipes, catch-basins and structures within the public R/W and on City owned property (over 22,000 inventoried structures and conveyances).
- Repairs/Upgrades to the public drainage system and City owned stormwater controls (i.e. retention ponds, sand filters and other treatment devices).
- Private property owner drainage assistance under the 70/30 policy.
- Street sweeping.



RIGHT-OF WAY DRAINAGE ISSUES

- As storm events grow in number and intensity, it stresses the City's aging drainage systems.
- Many of our drainage systems were installed decades ago (i.e. in the 1940's, 1950's and have exceeded their hydraulic lifetime).
- Over 30 major repair projects throughout the city and new projects are added regularly.
- Priority capital projects list over \$30,000,000 and growing.
- Over 20 years to complete.
- Does not include bridge maintenance/replacement projects.



RIGHT-OF WAY DRAINAGE ISSUES

- Staff respond to over 500 drainage calls per year in the public right-of-way.
- Issues can vary widely: from blocked catch basin causing road flooding to a multi-block drainage system failure.
- Smaller repairs are completed by in-house drainage crews and larger projects are completed by contracted forces through the capital improvements process.



Capital Project Timeline

- Consultant Selection Process **(3-6 months)**.
- Scope and Fee/Council Approval/Contract Execution **(2 months)**.
- Design/Permitting/Land Acquisition **(6-12 months)**.
- Construction bidding/Contracts **(3 months)**
- Construction **(3-12 months) depending on the size of project.**



High Priority Drainage Projects

- Culvert: **Hawthorne Road**
- Ward: Southwest
- Damages: culvert settlement, shifting, invert undermining,
- Approximate Replacement Cost: \$ 3,000,000
- Emergency contract in place with consultant. Alternatives analysis complete. Full culvert replacement needed.



High Priority Drainage Projects

- Culvert: **Devonshire Road**
- Ward: Southeast
- Damages: 48" corrugated metal culvert invert corrosion resulting in sinkholes within travel surface of Devonshire.
- Approximate Replacement Cost: \$ 350,000
- In-house drainage crew will make temporary repairs. CIP project needed for full replacement.



High Priority Drainage Projects

- Culvert: **Lynnhaven Road**
- Ward: West
- Damages: 24" corrugated metal culvert invert corrosion, resulting in sinkholes in the road.
- Approximate Replacement Cost: \$ 700,000
- In-house drainage crews have plated and closed the impacted road segment. CCTV of drainage system complete. CIP project needed for full replacement of drainage system.



High Priority Drainage Projects

- ▶ Culvert: **Autumn Mist**
- ▶ Ward: Southwest
- ▶ Damages: 24" concrete pipe separated resulting in large sinkhole in travel surface of Autumn Mist.
- ▶ Approximate Cost: \$150,000
- ▶ Inhouse staff have CCTV'd the line and are making repairs in order to allow ingress/egress to residential homes.



High Priority Drainage Projects

- Culvert: **Maplewood Ave**
- Ward: Southwest
- Damages: Two 54" metal pipes have collapsed resulting in road closure.
- Approximate Replacement Cost: \$700,000
- Staff are working with contractor under emergency provisions to replace the drainage system. Working with property owners to acquire easements.



High Priority Drainage Projects

- Culvert: **Aubry Court**
- Ward: Northwest
- Damages: Road closed due to infrastructure and impoundment failure.
- Approximate Repair Cost: \$300,000
- Inhouse crews are working to make repairs as staffing allows. Failed piping has been replaced and headwalls and road surface are outstanding.



High Priority Drainage Projects

- Culvert: **Patterson Avenue**
- Ward: Northeast
- Damages: 72" corrugated metal pipe damaged.
- Approximate Repair Cost: \$1,500,000
- Under emergency provisions, a design for replacement and construction permits have been obtained.
Contractor to mobilize May 9th (depending on material availability).



High Priority Drainage Projects

- Culvert: **Underwood Avenue**
- Ward: North
- Damages: 20'x 20' concrete box culvert invert failure resulting in sinkhole at the curblineline.
- Approximate Repair Cost: \$500,000
- Design for structural upfit underway. Inhouse staff have made temporary repairs to stabilize sinkhole.





Questions?