

An aerial photograph showing a narrow ditch or canal running through a landscape. The ditch is filled with water and has a grassy bank on one side. The surrounding area is dark, suggesting plowed fields or a different type of vegetation. The ditch appears to be a central feature of the landscape, possibly a drainage system.

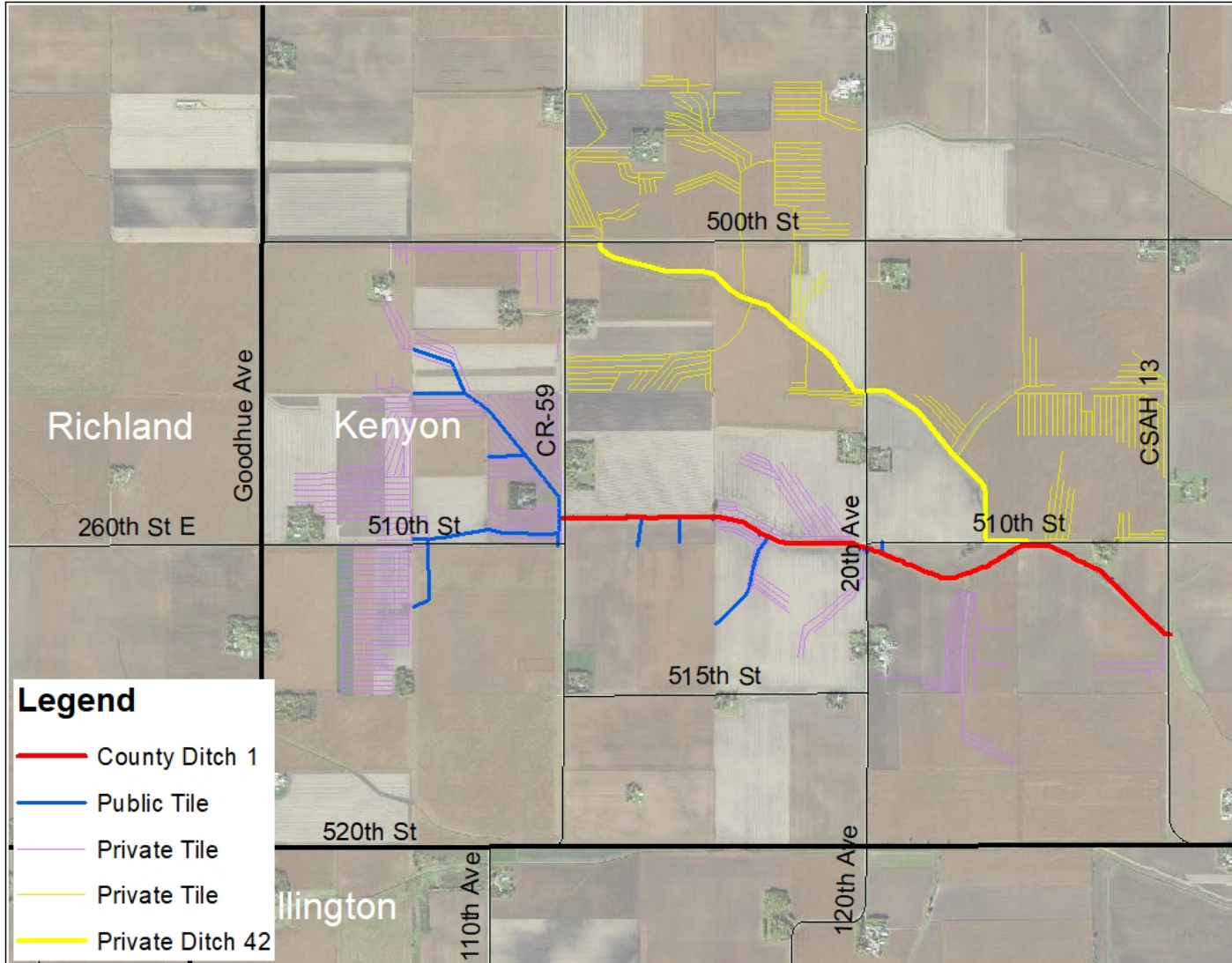
# Goodhue County Ditch 1 Public Hearing

## Repair Report Presentation

Chris Otterness  
Houston Engineering

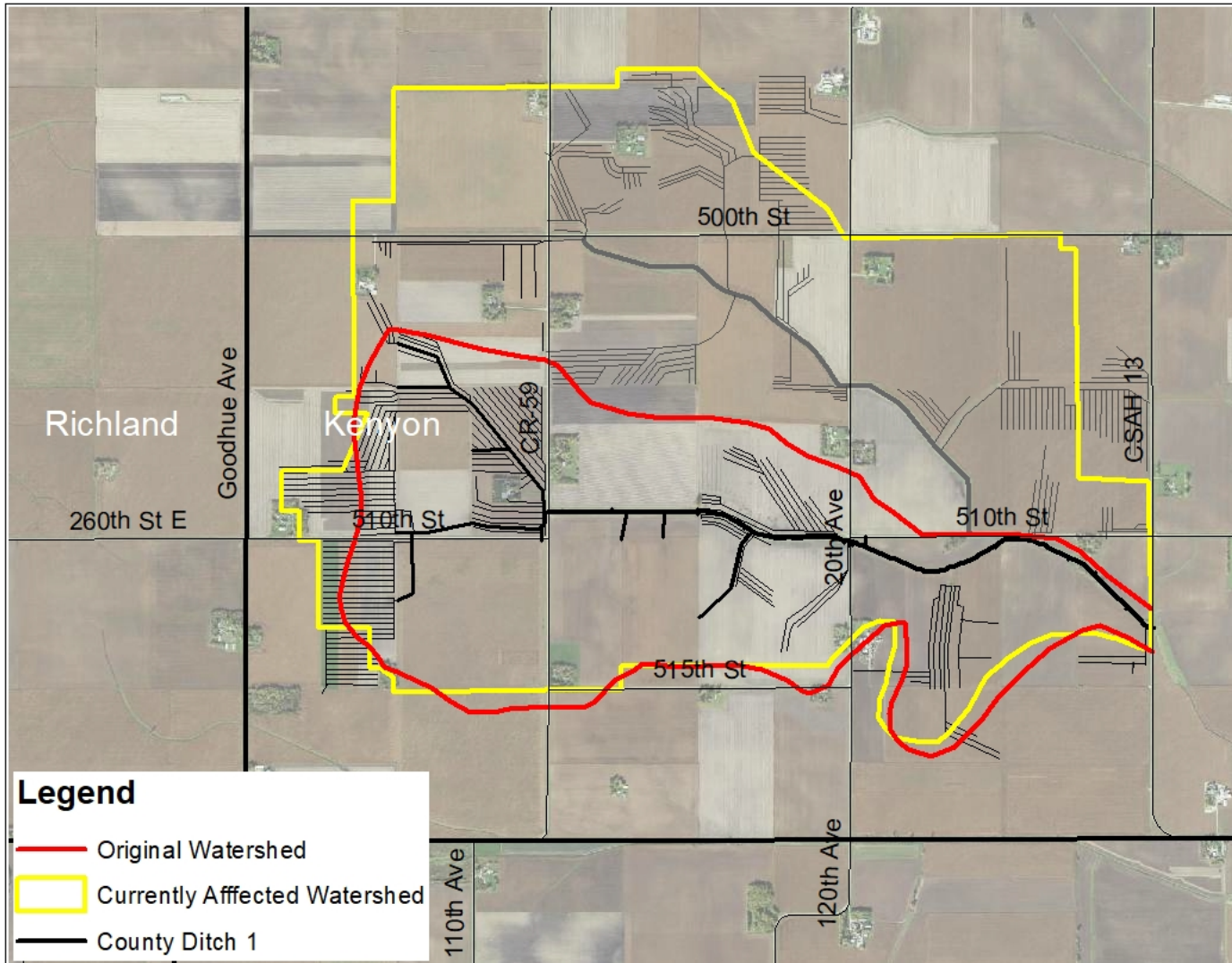
March 24, 2021

# PRESENTATION OUTLINE



- Review findings from repair report
- Discuss probable construction cost
- Discuss next steps and timeline

# REPAIR REPORT



## Two Components

- Inspection of public tiles (via televising)
- Repair recommendation for Main Trunk open channel

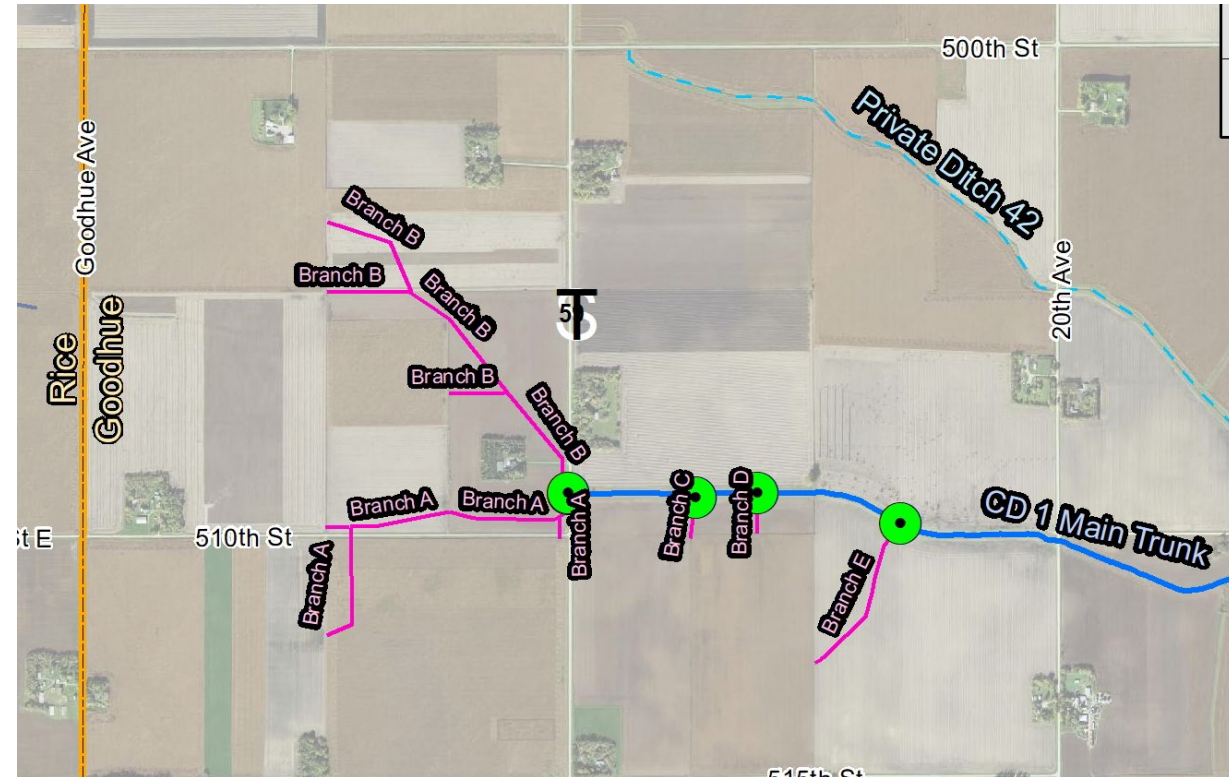
*Note: Inspection of open channel completed as part of a separate effort in the summer of 2020*

# TELEVISION OF TILE BRANCHES



## Televising Survey – September 2020

- Surveyor: Empire Pipe Services
- Locations: Branches A, B, C, D, E (Green dots)
- Process: Began at tile outlet, went upstream as far as possible
- Deliverables: Video and surveyor's report

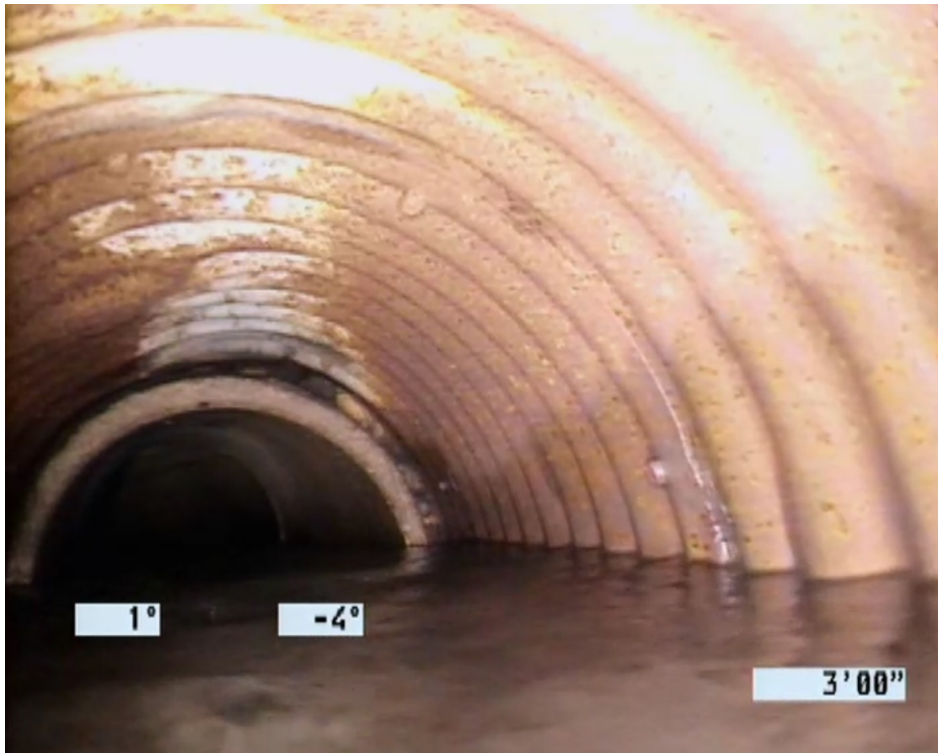


# CURRENT TILE CONDITIONS



## Branch A

- CMP added near outlet by undocumented repair, poor fitting



- Longitudinal cracking of concrete pipe



# CURRENT TILE CONDITIONS



## Branch B

- Broken concrete blocking outlet
- Erosion outside drop structure

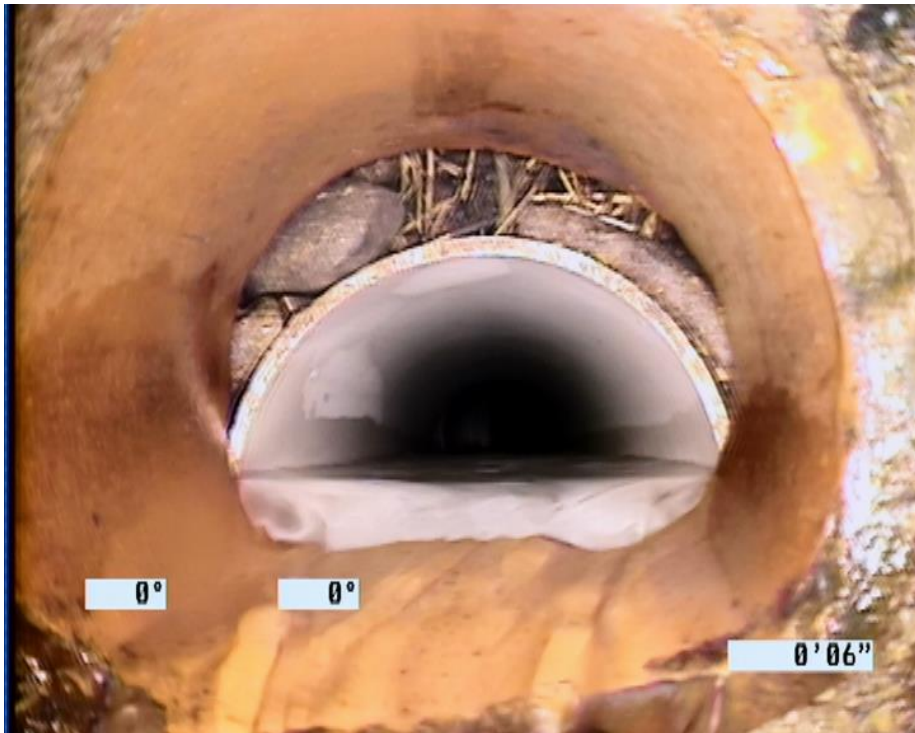


# CURRENT TILE CONDITIONS



## Branches C and D

- Obstructions near outlets



Branch C

## Branch E

- Surveyed up to 620' upstream
- At 8', RCP replaced with HDPE in good condition



# TILE CAPACITY



Current tiles have reduced flow capacity due to obstructions and material changes

Branch	Size	Flow Reduction
A	14"	28%
B	10"	41%
C	8"	25%
D	6"	37%
E	8"	4%

Three of five tiles appear to be undersized based on current design standards (Coefficient = 0.5 in/day)

Branch	Size	Max Flow (cfs)	Drain. Area (acres)	Coeff. (in/day)
A	14"	3.8	300	0.30*
B	10"	1.1	212	0.13
C	8"	0.8	107	0.18
D	6"	0.5	21	0.57
E	8"	0.5	61	0.20

\* Capacity of Branch A will be 0.41 in/day once repaired



# RECOMMENDATIONS – TILE BRANCHES



- **Branch A:** Repair (replace) to current grade / cross-section
  - May use next larger size if unavailable (e.g 14-inch becomes 15-inch)
- **Branches C, D:** Recommend repair only if desired by underlying landowner
- **Branch E:** No repair necessary at this time

**Note:** **Branch B** has been petitioned for improvement.

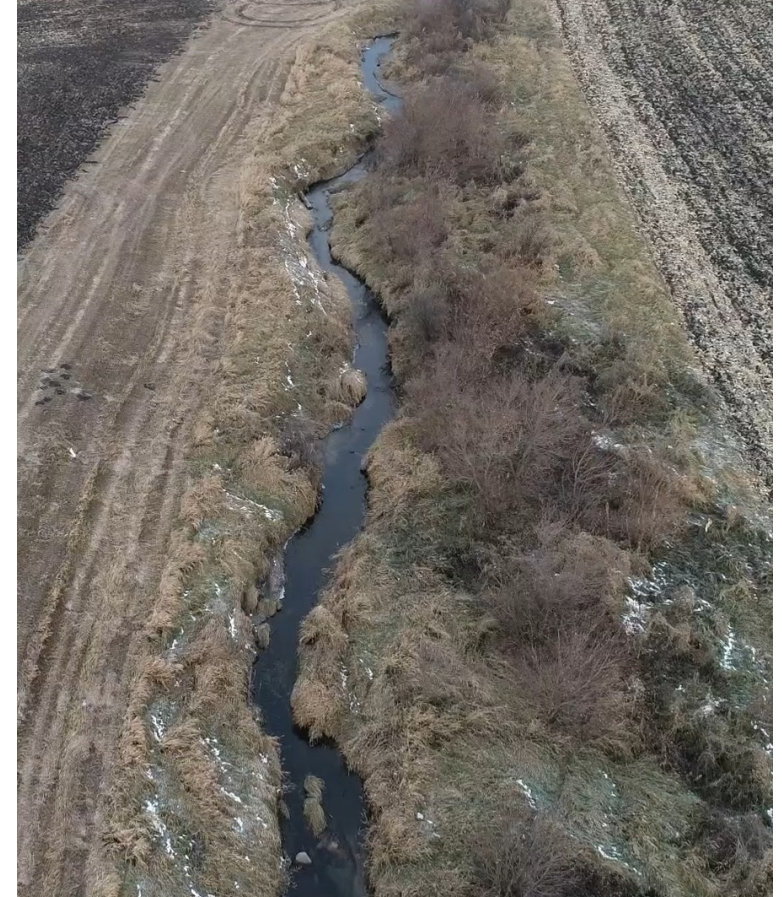
# MAIN TRUNK CURRENT CONDITIONS



Vegetation Growth  
and Debris



Bank Sloughing



Channel Meandering

# MAIN TRUNK OPEN CHANNEL



## Recommended Repair

- Remove trees and brush along top of bank
- Remove accumulated sediment from channel and place at top of bank
  - Level spoils if desired by landowner
- Replace culvert under 20<sup>th</sup> Ave.
- Replace culvert at field crossing
- Repair bank sloughing



# AFFECT OF REPAIRS ON ROADS / SYSTEM OUTLET

- Repair will restore efficiency of water conveyance downstream (same volume, but will get to outlet quicker)
- CD 1 benefitting landowners have right to drain to as-constructed and subsequently improved condition
- Landowners downstream of CD 1 are responsible for their own outlet
- Frequency of roadway overtopping at 510<sup>th</sup> St. and County 13 Blvd. will be reduced by project



# MAIN TRUNK -- PRELIMINARY OPINION OF CONSTRUCTION COST



Category	Cost
Construction Costs	\$252,860
<i>Public Road Crossings</i>	<i>\$25,920</i>
<i>Public Drainage Infrastructure</i>	<i>\$226,940</i>
Engineering, Legal and Administrative	\$62,140
<b>Total Main Trunk Repair Project Costs</b>	<b>\$315,000</b>

- Construction costs have 20% contingency applied

# BRANCHES A, C, & D -- PRELIMINARY OPINION OF CONSTRUCTION COST



Category	Cost
Construction Costs	\$205,930
Engineering, Legal and Administrative	\$49,300
<b>Total Main Trunk Repair Project Costs</b>	<b>\$255,230</b>

- Construction costs have 20% contingency applied



## Reasons Why a Private Tile Quote May Differ from Public Project's Engineer's Estimate

- Private tile quotes do not often include:
  - Tile Intakes
  - Utility crossings/coordination
  - Soil decompaction
  - Guaranteed schedule
  - Permitting
  - Televising
  - Performance/payment bonds
  - Meetings/coordination/specification compliance
  - Contingency for unforeseen conditions
  - Engineer/legal/Admin cost
- These items are necessary to protect the benefitting landowners' investment

# NOTES ON CONSTRUCTION COSTS



- POCC (aka Engineer's Estimate) based on database of completed projects
- Benefitting landowner contribution based on incurred cost
- Incurred cost may vary from estimate due to
  - Contractor availability
  - Material cost fluctuations
  - Contractor local knowledge and/or proximity to site
  - Other supply/demand factors



# PRELIMINARY TIMELINE



3/24/21: Final Hearings on ROB and repair (via web)

4/27/21: Advertise for bids

5/25/21: County Board considers bids

Summer/Fall 2021: Construction of Main Trunk Repairs

## *Note:*

*1. Timeline does not include Branch B improvement*

*2. Branch A, C, D repairs can be completed in conjunction with Branch B improvement or Main Trunk open channel*



- Is the drainage system in need of repair (open ditch and tile branches?)
- Are the recommended repairs necessary to restore function and benefit?
- Is the recommended timeline appropriate?
  - Complete Branch A, C, & D repairs in conjunction with:
    - Main Trunk open channel (2021); or
    - Branch B improvement (likely 2022)

# QUESTIONS FROM BOARD?

