



CSO MASTER PLAN PHASE 1 PUBLIC PARTICIPATION REPORT

October 2015

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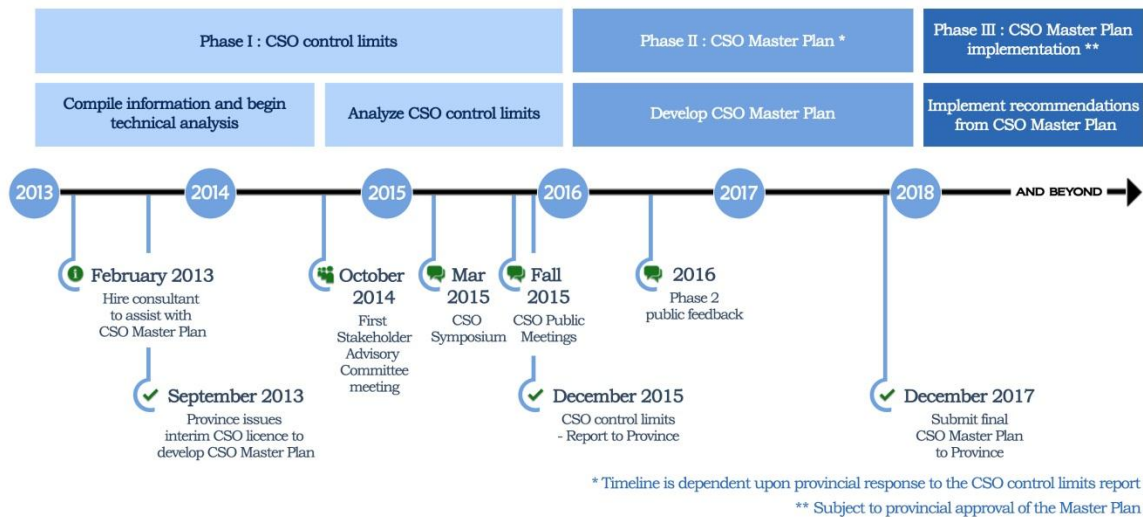
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BACKGROUND

In February 2015 the City of Winnipeg initiated a public engagement process to receive feedback on a plan to reduce combined sewer overflows and manage their effects in an environmentally sound, sustainable and cost-effective manner.

To help educate the public on what CSOs are an animation was created:

<http://www.winnipeg.ca/waterandwaste/sewage/cso/index.html>



Information on the public engagement for the CSO Master Plan is available on the website, which includes CSO topics that help to educate stakeholders on project matters: <http://wwdengage.winnipeg.ca/cso-mp/>

Phase 1: CSO control limits

The work of Phase 1 of public engagement is included in this report, which identified values to help shape decision criteria used to evaluate five CSO control limits.

Criteria:

- **River usability** – a control limit’s impact on the water quality, bacteria levels, public health, odour, aesthetics, recreation, etc. in Winnipeg rivers
- **Value for cost & affordability** – a control limit’s cost and the impact on future utility bills
- **Lake Winnipeg** – a control limit’s impact on the health of Lake Winnipeg and the watershed
- **Visionary & broader context** – a control limit’s impact on other City projects and priorities now and in the future
- **Economic sustainability & construction capacity** – a control limit’s impact on the economy and our ability to complete it efficiently

- **Livability** – a control limit’s impact on the lives of citizens during and post construction
- **Innovation & transformation** – a control limit’s impact on the quality of life in Winnipeg

CSO Control Limits:

1. 85% capture in an average rainfall year
2. Four overflows in an average rainfall year
3. Zero overflows in an average rainfall year
4. No more than four overflows per year
5. Complete sewer separation

Future phases of Public Engagement

Public engagement efforts will continue in two additional phases:

Phase 2 – a CSO Master Plan will be developed once a CSO control limit has been set

Phase 3 – implementing the CSO Master Plan once provincial approval has been received

PUBLIC FEEDBACK

Public feedback was collected from February 18, 2015 – October 5, 2015:

- Comments on the website – 20 comments
- Direct email (incl. via web form) – 1 email
- Comments in writing – 2 letters
- A **CSO Symposium** held on Thursday, March 5, 2015 – 62 attendees and 4 panelists
- Two **public meetings**:

Public Meeting Date	Attendees
Monday, September 14, 2015	24
Tuesday, September 15, 2015	29

- The CSO animation was played as part of the Water & Waste booth at Home Expressions, March 27-29, 2015.
- Rivers West promoted the work of the CSO Master Plan in its May 2015 News Bulletin.

In-person events were live-streamed and recorded so that presentations could be watched at a viewer's convenience.

A Stakeholder Advisory Committee was also brought together to share perspectives and help in developing a CSO Master Plan. The Committee met four times:

- October 2, 2014
- November 19, 2014
- January 28, 2015
- April 9, 2015

Committee membership, presentations and notes can be found online:

<http://wwdengage.winnipeg.ca/cso-mp/sac/>

Reports

Reports for the feedback received can be found in the following report:

- Summary of Comments and Responses
- Symposium Feedback Report
- Phase 1 Feedback Report
- Stakeholder Advisory Committee: What was heard

For further detail, please refer to the specific reports available online at

wwdengage.winnipeg.ca/cso-mp/

Also available online are the materials used during the public engagement process, including presentations and storyboards, as well as live-streaming captures of the in-person events.

METHODOLOGY

The public engagement process is based on IAP2 principles, best practices, and core values.

Responses from the symposium, public meetings and website are based on self-selecting respondents who are more likely to respond because they would like to express an opinion on the topic at hand. While these opinions are valuable, they cannot be viewed as representative of all Winnipeggers.

PROMOTION

Several methods were used to inform stakeholders throughout the engagement process:

- 124 invites were mailed out to key stakeholders (see Appendix A)
- Water & Waste email News was mailed out:

Date	Total emails Sent	Total emails Opened	No. of Click-throughs
February 18, 2015	3,876	2,053 (53%)	281
March 2, 2015	3,949	1,832 (46%)	133
September 2, 2015	4,589	2,330 (50.8%)	73
Sep 11, 2015	4,594	1,895 (41.2%)	38

- Information was also included in the first edition of the City of Winnipeg's Public Engagement News:

Date	Total emails Sent	Total emails Opened	No. of Click-throughs
October 1, 2015	3,811	1,904 (50%)	116

- Print advertisements were placed in the Winnipeg Free Press:
 - February 27, 2015
 - September 3, 2015
- Media interviews were held:
 - CJOB June 3, 2015 Richard Cloutier Morning show
 - CJOB Taped Interview June 24, 2015
 - CBC Radio Taped Interview June 24, 2015
 - CBC French TV September 15, 2015
 - CBC English TV September 15, 2015
- Events were also promoted through press releases and the City of Winnipeg's social media accounts, featuring the hashtag #WpgCSO.

APPENDIX A

KEY STAKEHOLDERS INVITED

LIST OF KEY STAKEHOLDERS INVITED

1. Chalmers Neighbourhood Renewal, Coalition of Manitoba Neighbourhood Renewal Corporations (SAC)
2. International Institute for Sustainable Development (SAC)
3. Lake Friendly, Partnership of the Manitoba Capital Region (SAC)
4. Manitoba Eco-Network (SAC)
5. Manitoba Heavy Construction Association (SAC)
6. Old St. Vital BIZ (SAC)
7. Rivers West (SAC)
8. Winnipeg Chamber of Commerce (SAC)
9. Manitoba Conservation and Water Stewardship (SAC)
10. Partnership of the Manitoba Capital Region
11. Winnipeg Regional Health Authority, Community Health Advisory Councils
12. Consumers Association of Canada (Manitoba)
13. Winnipeg Rowing Club
14. Association of Manitoba Municipalities
15. Canadian Federation of Taxpayers (Manitoba)
16. Manitoba Chamber of Commerce
17. Centre for Indigenous Environmental Resources (CIER)
18. Federation of Canadian Municipalities (FCM)
19. Manitoba Water & Wastewater Association (MWWA)
20. Green Action Centre
21. Provincial Council of Women of Manitoba (PCWM)
22. Western Canada Section American Water Works Association (WCS AWWA)
23. Save Our Seine
24. Manitoba Wildlands
25. Grindstone Cottage Owners Association
26. Nature Manitoba
27. Paddle Manitoba
28. International Joint Commission - Red River Board
29. Delta Marsh Field Station
30. Lake Winnipeg Research Consortium
31. Fish Futures
32. Winnipeg Water Watch
33. CPAWS
34. Manitoba Wildlife Federation
35. Manitoba Fly Fishers Association
36. North Red CFDC or Red River North Tourism
37. Ducks Unlimited
38. Western Canada Wilderness Committee, Manitoba
39. Nature Conservancy of Canada
40. Manitoba Lodges and Outfitters Association

41. Manitoba Paddling Assn
42. The Forks
43. Manitoba Naturalist Society
44. St. Norbert Arts Centre
45. Canadian Water Resources Association
46. Red River Catfish Preservation Society
47. Manitoba Pork
48. Lake Winnipeg Foundation
49. Red River Basin Commission
50. Transition Winnipeg
51. Council of Canadians
52. Green Manitoba
53. Overton Environmental Enterprises
54. Environmental Health Association of Manitoba (EHA-MB)
55. H2O: Ideas and Action for Canada's Water
56. Lake Friendly
57. RM of West St. Paul
58. RM of East St. Paul
59. RM of St. Andrews
60. RM of St. Clements
61. RM of Rosser
62. City of Selkirk
63. City of Gimli
64. Brokenhead Ojibway Nation
65. Southern Chiefs' Organization
66. KGS
67. Stantec
68. Dillon Consulting Ltd
69. Scatliff+Miller+Murray
70. APEGM
71. ACEC-MB
72. Manitoba Environmental Industries Association
73. Southeast Community Futures Development Corp
74. Southeast Resource Development Council
75. Manitoba Health
76. Freshwater Institute
77. HTFC Planning & Design
78. LM Architectural Group
79. MIT
80. Manitoba Municipal Government
81. CDEM
82. Manitoba Clean Environment Commission
83. University of Manitoba

84. University of Winnipeg
85. Red River College
86. International Facility Managers Association of Manitoba
87. Building Owners Association of Manitoba
88. Winnipeg Trails Association
89. Recreational Trails Consultant, Province of Manitoba
90. Urban Development Institute
91. Institute of Urban Studies
92. Sport Manitoba
93. Forks North Portage Partnership
94. Daniel McIntyre/St Matthews Community Association
95. North End Community Renewal Corporation
96. Spence Neighbourhood Association
97. West Broadway Development Corporation
98. Bike Winnipeg
99. Enterprises Riel
100. North Point Douglas Women's Centre
101. Centre Venture

APPENDIX B

CSO SYMPOSIUM LIST OF ATTENDEES

LIST OF CSO SYMPOSIUM ATTENDEES

1. Winnipeg Chamber of Commerce
2. International Institute for Sustainable Development
3. Lake Friendly, Partnership of the Manitoba Capital Region
4. CH2MHill
5. Old St.Vital BIZ
6. Manitoba Eco-Network (x2)
7. Inland Pipe
8. Eng-Tech
9. Manitoba Conservation and Water Stewardship (x4)
10. Manitoba Liquor & Lotteries
11. Step-Up Waste Management Solutions
12. Save Our Seine
13. Waste 'n Watertech
14. University of Manitoba (x2)
15. City of Winnipeg Councillor (x2)
16. MMM Group (x2)
17. Aboriginal Affairs and Northern Development Canada
18. KGS Group (x2)
19. Safeway
20. St.Pierre Public Works
21. St.Pierre Village
22. Lake Winnipeg Foundation
23. Red River Basin Commission (x2)
24. AECOM (x3)
25. CEC
26. BDM Projects
27. Paddle Manitoba
28. Power & Mine Supply
29. CNRC
30. AYO
31. InfraCor
32. Rivers West
33. Qualico (x2)
34. GEM Equities
35. MIT/Green Buildings
36. Old Saint Boniface Residents Association
37. Citizen (x17)

APPENDIX C

CSO SYMPOSIUM GROUP BREAKOUTS FEEDBACK

1) What stood out to you from the Panel presentation and discussion?

- Absence of comprehensive watershed management plan for the City of Winnipeg (bigger picture thinking is missing!)
- How do we recognize water quality as a priority within the larger economic landscape
- Economic investment as transformational
- Lack of regulations (federal/provincial level)
- Transformation from open sewers to recreational rivers
- Ratio of nutrient reduction into Lake Winnipeg vs. financial impact
- What's the objective if water quality achievement is not feasible? Basement flooding?

- Surprised by total length of combined sewer (1000 kms -> cost a lot to change)
- Need to fix infrastructure as it ages
- Lack of green initiatives in MB
 - Are we shying away from it?
 - Cost
- Need to consider lifecycle analysis
- Surprised by how small an impact it is <1%
- Need to think of long-term – structural deficit
- Where? End of pipe or source?
 - Reduce runoff
 - Work within system we have
- Low impact development
 - Put water back in the ground where it falls (permeable paving)
- Flooding is human-made problem
- Store water
- Cost benefit analysis, engage politicians, legislation, water budget, etc.
- No clear/obvious right answer
- Different answers depending on location
- Solution needs to be non point source

- CSO impacts on recreational/water quality are extensive when it happens
- CSO not the large contributor to phosphorus
- CSOs does not = phosphorus (or other nutrient) issues
- Very important issue – green infrastructure possibilities need to be considered
- Impact on aboriginal population
 - e.g. are dollars better spent on CSOs or other significant community based initiatives i.e. Roseau, Brokenhead
- The 1% factor to be addressed by significant dollars -> why?
- Why talk phosphorus? And not E.Coli?

- In “22 events” what is composition of liquids and solids
 - how much waste water goes into
- Factor in the lifestyle changes that are necessary even though people will have to “adjust ways”
- Good video, do more

- What’s the objective water quality or regulation
- Water quality (P), spending money on CSO is poor investment
- Needs to be a discussion City <-> Province what/which problem are we trying to solve. That discussion hasn’t happened.
- There appears to be no communication plan
- Opportunity cost of “solving” CSO issue
- Look at CSOs in broader context
- People concerned about water quality
- Water quality over CSO amounts
- Look at multiple benefits for any option -> bang for \$
- Learn from best practices/lessons learned in other jurisdictions
- Look at economic development opportunities
- Where does the money come from/cost
- Less than 1% - who has the biggest impact?
 - How do we do this as part of a normal infrastructure projects as opposed to one off mega-projects
- Take a long term approach = more affordable
- Need multi-party approach -> water shed approach -> many sources
- Educate Winnipeg and surroundings on what impacts we have on rivers & lakes

- Stop looking @ 90s – stop talking about the 1%, but rather set targets to concrete goals
- Do you want to spend \$ elsewhere + not fix CSO?
- Magnitude of \$ that is needed ->where is the best place to spend
- Is the objective to improve what quality or
- What is the GOAL?
- Focus on the task – make a choice + lets go
- 10% reduction is pretty good
- Stop dumping – embarrassment
- Talked about phosphorus along, only 1 aspect. What about the other chemicals, factors?

- Issue of economic benefit is a factor worth considering
- Spending all the \$ won’t improve water quality
- Vs load (phosphorus is huge)
- Are we reducing CSOs or water quality

- Def. of CSOs is useless – can be 1 hr, 1 day, 1 week -> quantity overflow
- 22 overflows x 79? They don't all discharge @ the same time.
- \$ invested into surface water mgmt. maybe worthwhile
- Greenspace/bioretention important for new dev.
- Hank: converting section in retention areas could store stormwater/economic spin-offs

- What is the actual estimated cost?
- Where does that money come from?
- Idea of protecting environment and waterways
- Watershed approach will just reducing CSOs fix the problem
- “1%”
- How to effectively spend \$\$
 - Don't think it's the right direction for spending \$\$
- Water quality trading
 - What role can MB play beyond Winnipeg
- What's the question
 - If water quality or CSOs
 - Still doing it same way
- Other cities used innovate approaches to existing/adapting infrastructure
- More consciousness of environment
- More extreme flooding
- Regulatory issue
- River users + raw sewage in CSO events -> “perception issue”
- Public perception is different than reality of the impact
- Incentive for individuals, and other “front of pipe” and what impact can be achieved instead?

2) What is important for the City to consider as it creates a plan to manage the effects of combined sewer overflows?

a) What issues, opportunities or considerations do you see that should be addressed?

- Consider other measures beyond phosphorus
- Financial impact on taxpayers
- Existing by-laws and building codes should be re-examined. e.g. holding tank for stormwater runoff for 'asphalt deserts'
- Considerations for drains that don't go anywhere
- Re-designing roads to slow the stormwater

- Cost, who pays?
- What is the goal
 - Basement flooding
 - Phosphorus reduction
- Public engagement
- Who sets goals?
 - Are we representative?
 - What are the interests/concerns of the public?
- More info about combining solutions e.g. H.Venema – Nutrient removal
- Diverting waste
- What is bigger impact: N End treatment plant or CSO?
- What is the GOAL?
- Low hanging fruit
- Use landscape architecture
- Population density

- Efficient/effective
- Series of smaller solutions/interventions leading to bigger approach
- Personal + business incentives as part of solution
- Share more of the data and create awareness of issues + solutions
- What are the city by-laws related to green roofs and other potential design strategies
- What is cost factor of treatment centres? What is the 1% factor (phosphorus) worth in terms of cost?

- Stage construction e.g. roads needs replace, do sewers, PLAN
- Water quality vs. CSO reduction -> what's the focus
- Cottage country – beach, loss revenue
- Role of city planning – new development, infrastructure, infill
- We should do something

- It's the right thing to do
- Do we replace infrastructure only when it fails
- Incorporating green infrastructure
- Water trading – part of the solution
- Alternative solutions to handle/store overland flooding, overland is P-rich
- Consider “front of pipe” solutions -> demand side
- We have to address existing CS systems
- How do we measure the impacts/benefits
- Look at similar size cities & climates for ideas
- Know what the capacities are & where
- How do we get the most impact with the limited \$
- Start small & make targeted impacts

- Make a meaningful/measurable difference!
- Obstacles that hinder/prevent innovators from creating solutions. Departmental red tape to get projects off the ground (run around)
- Need to think differently
- Dissemination of info

- Issue -> \$/revenue
 - 80/20 rule, huge investment for nominal result
 - Stringent licence
- Considerations
 - Province should step up
 - Are you really approve water quality
 - Risk implications
 - Protecting existing infrastructure
 - Solutions are based on region/area
- Opportunities
 - Innovation
 - Economic spin-offs
 - Job creation
 - Innovative solutions?
 - Sewer renewal
 - Educating public on reality of CSO impact on our rivers

- Green infrastructure is huge
- Take water where it lands and deal with it
- What are lifecycle costs on investment?
- New land management planning
 - New criteria
 - Uses of land

- Where are conditions the worst (e.g. events even when it's not really wet weather)
- Wet weather flows – how can you manage the storm water (better)?
 - How much store water runoff at each site
- System
- Pay a tax for land drainage
 - Economic incentives
 - “Stormwater fees”
 - In other cities making people aware of individual role to play
- CSOs if eliminate stormwater flow, more sewage capacity for density
- Capacity of current treatment plants
- Where does Winnipeg fit into bigger watershed in terms of impact?
- Land ownership – where is this in the equation

b) How would you assess or evaluate river quality?

- More data collection, more tech
- See floatables
- Concentrations of pollutant parameters: TP, BOD
- Riparian zones, shoreline health, re-established buffer zones – have supporting by-laws

- Ongoing monitoring
 - What are you testing?
 - How often?
 - Before and after flood/snow
- Recreational usage
- Species diversity (long term)
- Habitat
- E.Coli
- Solution: cap overflows, divert, store
- Consider: debris, fecal matter, Ph, aesthetics
- Micro-portable waste water treatment plants (MBR)
- Treat it before it hits the river
 - Consider cost and use and age of infrastructure (79 sites!)

- Sampling, monitoring
- Chemicals, nutrients, aesthetics, appearance, aromas, fish suitability
- Need to know more about the science aspects in terms of river quality
- What are the details around how the St.John's, Scotia St places work and all land drainage spots "the 76"
- The survey percentages of river activity use
- Inform + educate = create better knowledge
- Some importance to factor in what other jurisdictions are doing: learn from others

- Swimmable, fishable, in water sports
 - Is it achievable, clay + silts
 - Winnipeg 'muddy waters'
- What the "measureable" pollutants?
 - Pharma, ecoli, etc.
- Reduce odour from rec activities
- Return river to rec quality
- Small scale & measurable impact

- Perception or reality

- Floatables
- Testing water/parameters at the CSO sites
- Test up and down stream
- Sensitivity of testing
- Land drainage quality – testing?
- Bigger picture vs. fixing the 1%
- Development, managing runoff
- Landscaping within certain districts – duty to make it better

- Excellent water quality, but wouldn't swim in it
- Water treatment plant upgrades will show improvement in water quality
- Number of nutrients in water
- Shouldn't evaluate it based on colour

- Look at indicator organisms
- If you can keep it out of treatment plant
 - Source control
 - Decentralized treatment
- Surface drainage will take more than a pipe “flow slipping”
- Low impact development – how does this work in downtown Winnipeg where its already developed?
- Complications from winter – sand, gravel, etc.
- Spring runoff
 - Top level of parkades -> park (manage drainage)
 - Green buildings/roofs
 - In sewers too
 - Green alleys in Chicago

3) As planning continues what information might be important for public and stakeholders to know or hear about?

- Clearly identify the objective
- What other precedents from other cities
- Prove that they've explored and exhausted all options, that what they are doing is the answer
- Maximize on existing WTP
- Let's know about what you can do as an individual, what everyone can do about it. e.g. front of pipe
- Think outside the box, change thinking from 50s
- BIG picture plan from infrastructure to multi-point solutions
- We want to know about low flow toilets, water reduction, greywater system
- Pilot projects of best practices – educate people about results
- Reference your proposed solutions e.g. this solution "A" works in Minneapolis

- Numbers
 - Ph, flow, E.Coli, pharmaceuticals, impact with no action
- Many options -> present a variety, and how they would work with planning dept.
- Cost, who pays?
- Benefits of CS? Supporting surface water management through treatment facility
- Benefits to removing/retrofitting CS
- How does this impact new development?
- How does this change planning?
- More info to public will make it easier later to implement
- Precedents from similar cities
 - Size, demographics, geography, geology

- Cash cost
 - How much do we spend?
 - What is the cost benefit
 - Overall bang for buck
- Justifying sewer pipes vs. hospitals
- Spending on treatment plants? Prevents algae blooms, reduce basement flooding
- Championing the goals -> focus on what do we get for what we are spending
- Education + awareness, the hidden unknowns
- Help people know the "provincial legislation and criteria/requirements" "The Letter" What other alternatives are there? Upstream control vs. the city.
- Get a better handle on the issue
- Create better communication: another stage of videos to build off the first one -> general public will learn it better

- Better collaboration between city/province so the public can feel that an effective and coordinated approach is happening on the subject
- Facts
- Costs
- Disclosure vs. selling the solution
- Educate the public
- Options vs. values
- Is this where we want to spend our money
- Money to go water quality vs. CSO reduction
- Are we going to cleaner water, cleaner L.Wpg. or CSO reduction
- Water trading solutions
- Green technologies – could we benefit water quality more cost effectively
- Could Seine River be used as a pilot
- Water quality
 - Nutrients P,N
 - Aesthetics
 - Coliform
- Is there room for multiple solutions, beyond CSO and beyond city boundaries
- Public should know what the results of their activities on water quality, and what they can do to help
- The 1% # - is it going to help water quality
- Why should they are about the “1%”
- Where does this fit with climate change, impacts of more rainfall events
- How do we define water quality as a community?
- What are we willing to pay to get this water quality
- Role of consultant in CSO MP process, versus implementation
- Construction impacts
- Letting people know this is happening! Important!
- Systems built for human health, framing it in a way that people understand it
- People aren’t aware of green infrastructure potential solutions, how effective they are or are not
- Some development hasn’t changed its ways
- Current rules + practices of [development] haven’t been enforced
- Public needs to be more aware of how developers must operate
- What are the cost of the infrastructure options? Cost of other control option “current” info – is there a new # figure is 13 years old – 2002
- What are city’s controls factors, city can’t do it alone! Needs province.
- Volume of run off in a big #
- When will the Master plan be complete?
- Include the options in the plan for awareness, options +/- forces people to think

about it

- Fargo option – not practical for Manitoba due to agriculture sacrifice – what are the cost implications of this option
- Could we store what where we convey it?
- Not likely because you'd compromise

- Everybody needs to understand that improving CSOs will have minimal impact to the environment + water quality
- Make a plan to reduce overflows
- People to be educated on actual pollutant level of river
- Bottom line: Province will review the final report + we will have to deal with their decision.
- Government does not tend to invest in improvements that cannot be seen

- CSOs and bacteria and "BOD" – where do these fit in?
- "Floatables" – condoms, poop, syringes
- Fact vs. fiction
- How are they collecting the data? (monitoring)
 - Make it available to public
- Video was clear on what CSOs are -> but now: what is the effect on water
 - Does it affect our drinking water? (Not just in Winnipeg, but downstream)
- Clear on cost and effectiveness
- What is the real benefit to basement flooding (now + later) – what change for investment?
- Budget process – with structural deficit, need transparent process
- Public education on human health impacts
 - Safety precautions
 - Awareness when events are happening (so rec users can make informed decisions)
 - Same goes for treatment plant discharges
- Incentive e.g. in Seine River area

APPENDIX D

PUBLIC MEETINGS LIST OF ATTENDEES

LIST OF CSO PUBLIC MEETINGS ATTENDEES

1. University of Manitoba (x2)
2. Wawanesa Insurance
3. Belgian Club
4. Celco Automation
5. Manitoba Health
6. Spence Neighbourhood Association
7. BDM
8. Manitoba Conservation and Water Stewardship (x3)
9. RM of St. Andrews (x4)
10. MIT
11. Green Action Centre
12. First Person Strategies
13. Weston Residents Hsg Co-op
14. Stantec Consulting
15. CH2M
16. Aboriginal Affairs Canada
17. The Uniter
18. Chalmers Neighbourhod Renewal
19. Save Lake Winnipeg
20. AECOM
21. 71 Roslyn Condo Board
22. RM of East St.Paul
23. Terracon Development (x2)
24. CBC Manitoba
25. City of Winnipeg Councillor (x2)
26. Citizen (x22)

APPENDIX E

PUBLIC MEETINGS QUESTIONS & RESPONSES

PUBLIC MEETINGS QUESTIONS & RESPONSES

1. Are basement backups caused by combined sewer systems?
 - Yes, basement backups can be caused by high levels in both the combined and separate sewer systems if the home/business is not protected by a backwater valve and sump pump system. The City of Winnipeg and the Province of Manitoba have a joint program to assist residential homeowners subsidize the cost of installing a backwater valve and sump pump system. Further information can be found [here](#).
2. Is the reduction of basement backups factored into the cost/benefit analysis for the CSO plans?
 - Yes, it is factored into each of the CSO options.
3. The presentation refers to Wastewater Systems Effluent regulations and states that ammonia is not a factor due to dilution—has the City sampled for ammonia?
 - Yes we have sampled for ammonia as part of the [CSO water quality monitoring program](#) that we have undertaken over the last two summers.
4. Are water samples taken at the outfall before it reaches the river?
 - Yes, water samples were taken upstream, in the outfall, prior to the overflow discharging to the river at 8 locations. We also take samples in the river.
5. What causes CSO overflows during the winter?
 - Many factors can cause dry weather overflows during the winter, such as rapid snow melt, water main breaks or a high water table leading to infiltration.
6. Do any of the CSO options include in-line storage?
 - All the proposed options will have some component of in-line storage depending on the level of storage required.
7. What will the zero overflow option consist of? Would it be dedicated transport tunnels?
 - The zero overflow option will consist of tunnels and controlled pumping.
 - Dedicated tunnels can span multiple combined sewer districts to store the storm water and pump to the treatment plant once the storm event peaks have passed.
8. Do the CSO options consider green technologies like storm water management? What would this look like?

- As part of all the options, green technologies will be incorporated in some form.
 - Green technologies could include but not limited to rain gardens, green streets, bioswales, etc.
9. Do the CSO options proposed have the capacity to deal with the impacts of climate change and extreme weather?
- All options will be impacted by climate change. The additional storage volume required will depend on the recommended option, which will be designed at a later stage.
10. Can phosphorus be managed through the CSO Master Plan (CSO MP)?
- The CSO MP may not be the best way to address the phosphorus issue. Phosphorus in the captured flow will be treated at the sewage treatment plants once the nutrient upgrades are complete.
11. How does the City plan to manage growth in the core areas, given that most combined sewers are found there?
- The CSO Licence does not allow for increased CSOs due to further development.
12. How many overflows occur in the Cockburn CS district? Is the City in compliance by not adding additional CSOs?
- The Cockburn district had 18 CSO events in 2014.
 - There is currently separation work being undertaken in Cockburn.
 - Any new development is restricted to pre-development runoff flows.
13. Is the plan to install a two-pipe system (complete separation)? Is it difficult to construct?
- Until we have a control limit set, we do not know how much of the system will be a complete separation ([two-pipe system](#)).
 - Complete separation the most costly option but it can be done with time and coordination.
14. What would the impact be on sewer/water utility bills if Option 5 (complete separation) were spread out over 60 years?
- The impact would be less, but inflation would need to be factored in. The total costs would be more for this scenario. Further information regarding implementation time can be found [here](#).
15. What time period was used to calculate the “average rainfall?” Does this include climate change?
- About 30 years of data was used to calculate the “average rainfall.”

- Climate change will need to be factored into the design and will be done at a later stage.
16. When work begins on limiting CSOs, will the entire 1000 KM of sewers be affected?
- No, only parts of the 1000KM of pipe will be affected as there has already been previous work done in combined sewer areas.
17. What control limit would the Ness/Route 90 sewer work fall under? How many years will that take?
- That work is under the current program – see the information displayed on the [“Current Approach to CSOs”](#) storyboard.
 - This program is ongoing and is projected to be completed in about 10 years.
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18. Why do the storyboards have an Option 0 (current approach), considering MB Conservation and Water Stewardship provided the City a Licence to explore different CSO management options?
- The Province issued the Environment Act Licence No. 3042, which pertains to the management of CSOs.
 - There are five proposed CSO Control Limit Options and option zero (“Current Approach to CSO”) storyboard is shown as a baseline to disclose the work the City is currently undertaking.
19. Do you know how much volume is discharged into the rivers when you average 22 overflows a year?
- About 1% of the total annual sewage generated is lost to overflows.
20. When overflows discharge to the rivers, has nitrogen or phosphorus been removed? What is the impact on our waterways?
- No, nitrogen and phosphorus are not captured when CSOs occur.
 - Nitrogen and phosphorus amount in CSOs is a small component of the total nutrient loadings to Lake Winnipeg. We want to do our part in reducing those numbers but it is also our responsibility to inform the public that eliminating CSOs will have very little impact on the health of Lake Winnipeg.