

**Scriber Creek Flood Reduction Advisory
Committee**

Final Report and Recommendations to Lynnwood City Council

July 2014

Scriber Creek Flood Reduction Advisory Committee Members



The following Advisory Committee members submit this report on Scriber Creek Flood Reduction to City Council for their consideration. Committee members express their appreciation to City Council for the opportunity to provide input in this process.

Josh Brower, Great Floors Representative

Miran Che, Eunla Plaza

Nora Chin, Citizen

Dave Gilbertson, Parks Board

Brian Harding, Edmonds School District

Larry Ingraham, Citizen

Chris Nyhus, Business Owner

Matt Pease, Business Owner

David Plodwick, Citizen

Ed dos Remedios, Citizen

Roz Smith, Casa Del Rey

Eric Whitehead, Casa Del Rey

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Executive Summary

Scriber Creek flooding has adversely affected residents, businesses, and neighborhoods in the creek's corridor, specifically those residing and working between 188th Street SW and 196th Street SW in Lynnwood. In October 2013, the City of Lynnwood ("the City") hired a team of consultants led by Herrera Environmental Consultants to assess the creek's existing conditions, determine a suite of flood reduction alternatives that would help alleviate flood risk in the corridor, and to evaluate those alternatives in detail to form recommendations for a flood reduction action plan. To help ensure that the alternatives chosen by the City were both technically feasible and supported by the public, the City of Lynnwood Mayor Nicola Smith authorized the formation of the Scriber Creek Flood Reduction Advisory Committee ("the Committee") to help guide the City and its consultant team in selecting which flood reduction alternatives to evaluate in their technical studies.

From March to June 2014, the Committee met four times and dedicated a combined 120 hours to discuss flooding patterns, known flood events, comparative evaluation criteria that should be used to guide the City's decision-making, and potential flood reduction alternatives. This Recommendations Report is the culmination of the Committee's work and outlines the preferred flood reduction alternatives that the Committee would like to see the technical consultants evaluate in the second phase of the Scriber Creek Flood Reduction Study. The Committee recommends evaluating the following alternatives:

1. Creating a regional flood storage site at the Edmonds School District property.
2. Realigning the culvert beneath the Casa Del Rey condominiums access roadway and improving the channel between Casa Del Rey and 196th St. SW, particularly the section of the creek under the rear entrance to the Parkview Square Business Center.
3. Increasing flood storage at Scriber Lake, while reconfiguring the lake inlet and outlet controls.
4. Use hydraulic modeling to evaluate flood prone properties at a specified level of service to determine where flood prone properties are both currently and if stream culverts are replaced. With this knowledge, the City can consider buyouts of flood prone properties and/or incorporate distributed detention/storage ponds where possible.
5. Replacing the culvert(s) under 196th St. SW.
6. Raising the road at 188th St. SW and possibly excavating upland areas around the existing wetland area through which the creek flows to create more flood storage.
7. Raising portions of "old 196th" and driveway access to Park View Plaza and Great Floors and/or removing the old 196th bridge.
8. Developing a continuous sediment removal program that would remove sediment deposition in the creek channel as needed, as well as engaging in channel stabilization where the creek banks are eroding to reduce the sediment sources within the channel.

Background

Repeated and significant flooding has occurred for the past 20 years in the Scriber Creek corridor between 188th Street SW and 196th Street SW in Lynnwood, impacting private residences, businesses, property, streets, and other infrastructure. The flooding problems within this portion of the Scriber Creek basin occur on both public and private property. Homeowners, businesses, and the travelling public are all adversely affected when flooding occurs. The City of Lynnwood (City) is commencing a concerted effort to plan for flood reduction improvements in this corridor, and seeks to collaborate with affected land owners, residents, businesses, and other interested parties to identify specific flooding problems, evaluate a range of solutions, and ultimately to implement a suite of actions to effectively address flooding problems.

Introduction

On January 15, 2014, City of Lynnwood Mayor Nicola Smith authorized the formation of the Scriber Creek Flood Reduction Advisory Committee (“the Committee”) to advise the City on the public’s preferred suite of flood reduction alternatives that the City’s technical consultants should focus evaluation efforts on in the second phase of the Scriber Creek Flood Reduction Study. The City of Lynnwood hired Triangle Associates, Inc. (Triangle), as part of the Herrera Environmental Consultants team, to facilitate the Committee’s business.

The Committee’s purpose was two-fold:

1. Document where community members have seen flooding and the severity of that flooding; and
2. Provide community perspectives on proposed solutions that are put forward by either the City or Committee members.

The City was looking for advice and innovation from the Committee, and will incorporate the Committee’s input, as well as feedback from the broader public, into its decision-making process to the maximum extent feasible.

Process

The Scriber Creek Flood Reduction Advisory Committee met four times dedicated a combined 120 hours in an effort to identify which suite of flood reduction alternatives warrant thorough evaluation by the City. During these meetings, Committee members provided the project team with narrative feedback on past flood events in the study corridor, identified the Committee member’s goals, objectives, and criteria for the project, and outlined their preferred suite of flood reduction alternatives.

The Advisory Committee has compiled its recommendations in this report to the Lynnwood City Council.

Scriber Creek Flood Reduction Advisory Committee Participants

Nick Aldrich	City of Lynnwood Parks Board Representative
Josh Brower	Great Floors Representative
Miran Che	Owner of Eunia Plaza
Nora Chin	Homeowner
Dave Gilbertson	City of Lynnwood Parks Board Representative
Brian Harding	Edmonds School District Facilities Operations Director
Larry Ingraham	Citizen
Chris Nyhus	Park View Plaza Business Owner

Matt Pease	East Park View Plaza Business Owner
David Plodwick	Homeowner
Ed dos Remedios	Homeowner
Roz Smith	Casa Del Rey Condominiums
Eric Whitehead	Casa Del Rey Condominiums

Meeting Attendance

	Meeting 1 3/17/14	Meeting 2 4/21/14	Meeting 3 5/19/14	Meeting 4 6/16/14
Nick Aldrich	✓			
Josh Brower	✓	✓	✓	✓
Miran Che	✓			✓
Nora Chin	✓	✓		✓
Dave Gilbertson	✓		✓	✓
Brian Harding	✓	✓		
Larry Ingraham	✓	✓	✓	✓
Chris Nyhus	✓	✓		✓
Matt Pease		✓		✓
David Plodwick	✓	✓	✓	✓
Ed dos Remedios		✓	✓	✓
Roz Smith	✓	✓	✓	✓
Eric Whitehead	✓	✓	✓	✓

Consensus Definition

The Committee aimed to come to consensus on which alternatives to put forward as recommendations to the City Council. According to the Advisory Committee operating protocols:

“Consensus is defined as agreement of all members, and will be the preferred method of determining Committee agreement on issues. Full consensus involves agreement of all members, described as:

Consensus: The group will reach consensus on an issue when it agrees upon a suite of alternatives and each participant can honestly say:

- *I believe that other participants understand my point of view.*
- *I believe I understand other participants’ points of view.*
- *Whether or not I prefer this alternative, I support it because it was arrived at openly and fairly, and it is the best decision for us at this time.*

In instances where consensus cannot be reached, recommendations will be approved if supported by a majority of the representatives (or alternates) present. Meeting summaries and/or reports will capture agreements and differing perspectives.”

Alternatives that were not significantly opposed by any member of the Committee are categorized in this report as recommendations. This report captures if and when differing perspectives were heard.

Identified Flooding Characteristics

Advisory Committee members identified site specific issues and commented on when flood events have occurred in the neighborhood. The figure below shows specific locations where Committee members offered information on past flooding observations.



Comments organized by site location (green numbered boxes in the figure):

Site 1:

- In 2012, flooding of the garage and above the finished floor occurred at the northwest corner of 55th Ave. W and 189th St. SW.

Site 2:

- In 2006, flooding up to the back of the house at the west end of 189th Pl SW was observed.

Site 3:

- Portions of the channel in the vicinity of the 190th St. SW crossing are armored with rock. On occasion, some rocks have been observed to be picked up by turbulent flood water and carried downstream.

Site 4:

- The parcel at the southeast corner of the intersection of 190th St. SW and 55th Ave. W was flooded above the finished floor in 2006. The adjacent intersection floods more frequently.
- Creek flooding has not affected the three parcels in the Brookmore Estates development at the west end of 192nd St. SW.

Site 5 (Casa Del Rey Condominiums):

- During the December 2007 flood event, the access road on the south side of the Casa del Rey property was significantly overtopped and vehicles could not pass through this area. The East building had flooding in the first floor hall and in the units, especially in the northwest Unit #110, which has severe flood damage from water that came from the property to the north through the fence. Additionally, during this flood, the roof gutters were unable to drain into the creek as they normally do, thus causing severe water leaks at every non-sealed joint.
- There is a storm drain emanating from the west that directs flow to the creek with an outlet along the north side of the Edmonds School District stormwater pond. When it rains hard, that storm drain “shoots” flow out under pressure.
 - When there is a flood event in the creek, the flow coming out of that storm drain wraps around the stormwater pond (between creek and stormwater pond), and does not enter the creek until it gets closer to Casa Del Rey. The pond outflow combined with overbank creek water and the aforementioned storm drain flow is a sheet of water as it flows over the floodplain toward Casa Del Rey.
- Committee members from Casa Del Rey expressed that they do not think the Edmonds School District detention pond is working like it is supposed to.
- When the creek is running high, the zig zag alignment of the creek channel approaching the Casa Del Rey fence line gets bypassed and the flow takes a wide diagonal swath/approach to Casa Del Rey.
- Casa Del Rey did not experience overbank flooding in November 2012, when significant flooding occurred upstream in the study corridor.

Site 6 (Business Park – Great Floors & Park View Plaza):

- The creek flooding has not been above the Great Floors finished floor elevation.
- The building west of Great Floors has not been flooded above the finished floor, but has been subject to sanitary sewer backups.
- Upstream of the “old 196th bridge”, during high flows the creek jumps out of the bank and into the Great Floors detention pond and from there spills onto old 196th.

Site 7 (Just Downstream of Park View Plaza):

- A high water mark was mentioned as water up to the 2nd board of the old bridge during the 2007 event.
- Old 196th street is inundated very frequently and not just during big storms.

Site 8:

- There is chronic sediment build up in the section of the creek upstream of the old bridge crossing, including the short section of channel within the business park and the section of channel paralleling 196th.

Site 9:

- Between the old bridge and the culverts under 196th St. SW (where the creek flows west, parallel to the roadway), mitigation planting was done along the channel for the upstream regional detention pond project. The planting is overgrown and there is concern that it negatively affects the stream conveyance capacity.

Site 10:

- The upstream end of the culvert crossing of 196th St. SW may have settled to the extent that it is now at reverse grade and negatively affecting conveyance capacity.

Goals

The fundamental goal of this study is to identify a suite of feasible alternatives that will reduce flooding to desired levels, in ways that can be readily maintained. Additional goals that the Advisory Committee wants addressed include the following:

- Improve aesthetics in the area.
- Take advantage of partnership opportunities with community groups and public agencies.
- Return the holistic functionality of the corridor, including a return to native vegetation.
- Improve the quality of life for those living and working in the corridor.

Flood reduction actions should be implemented quickly, successfully, and in a way that manages future development to control impacts to the creek area.

Objectives

The Advisory Committee defined the following objectives in support of the goals listed above:

- By June 2015, select flood reduction alternatives that will reduce flooding to the desired levels and be easily maintained indefinitely.
- When implemented, flood reduction alternatives will improve aesthetics along the corridor, specifically near old 196th, which includes planting native vegetation.
- Flood reduction alternatives will include partnership opportunities with the Edmonds School District, Edmonds Community College, and the City of Lynnwood Parks Board.
- Flood reduction alternatives will be implemented in a timely manner.
- Flood reduction alternatives will consider impacts on residents and business owners, including the evaluation of property value impacts.

Evaluation Criteria

The Committee reviewed and generally agreed on a set of example criteria for comparing flood reduction alternatives provided by Herrera:

- Potential to **reduce flooding** in the study area
- Effects on **flooding downstream** of Scriber Lake
- **Social impacts/benefits** (this includes aesthetics, odors, mosquitoes, etc.)
- **Public safety** considerations (e.g. could a solution have some potential concerns for safety, like creating a drowning hazard?)
- Effects on **stream and riparian habitat**
- **Implementation** feasibility (from a design and construction standpoint)
- **Land ownership/easements** (potentially affects complexity, cost, timing)
- **Permitting requirements** (Is the project readily permittable? Is expensive environmental mitigation likely?)
- **Construction costs**
- **Operation and maintenance requirements** and costs (post-construction, long-term costs)

Committee members added the following criteria for the City to consider:

- Ease of **maintenance**
- **Partnership** opportunities
- Ability to return a more **natural flow pattern** in the corridor
- **Aesthetics**
- **Timing** – how quickly will the project be successful?
- Use of **native plantings**
- Financing/**funding** (who is paying for it – increase for rate payers?)
- Reduction of **sediment transport**
- Effects on **humans**
- Potential to help management of **future development**
- Effects on **property values**

Committee members would like to see the City give more weight to the following criteria:

- Implementation feasibility
- Ease of maintenance
- Effects on humans (property values, etc.)
- Potential to help management of future development
- Financing

The criteria described above were aggregated into six categories for initial assessment of potential flood reduction alternatives. These categories are:

- Community considerations
- Flood reduction performance
- Cost
- Ease of construction/implementation
- Ease of Maintenance
- Habitat Improvements

Recommendations

Advisory Committee members were asked to rate each alternative brainstormed by the Committee according to the “community considerations” category on a scale of 1 (lowest value) to 5 (highest value), but not for the other categories that require either specialized expertise or additional information not yet generated by the project team. The following section describes the results of the Committee’s ratings of potential alternatives with respect to community considerations, which capture the following issues:

- **Aesthetics** impacts/benefits (appearance, odors, mosquitoes, etc.)
- **Public safety** considerations
- **Land ownership**/easements
- **Partnership** opportunities
- Potential to help **management of future development**
- Effects on **property values**

Based on their analysis, the Scriber Creek Flood Reduction Advisory Committee strongly recommends the City evaluate eight specific flood reduction alternatives, which are described below. The Committee understands that more alternatives may need to be implemented in order to create a complete, holistic solution to the flooding issues so that the most severe and long-standing problems in the corridor are adequately addressed. Additionally, the Committee understands that the alternatives evaluated and described in the next section, “Alternatives Considered,” are likely still on the table during the second phase of work on this study, but urges the City to gear future efforts toward the more strongly recommended alternatives listed in the table below.

The average scores listed in this table are Committee members’ rating of each alternative according to community considerations.

Recommendations Table

The Committee would like to emphasize that the below recommended alternatives take a holistic approach to reducing flood risk in the study corridor that includes short-term, mid-term, and long-term recommendations. Some flood reduction actions may work best if volunteers are used (such as Recommendation #8) who would work alongside and in partnership with City staff. Throughout all of these recommendations, it is important to keep in mind ways to address improvements to the natural habitat areas along the stream corridor and potentially look for future opportunities to daylight the stream and reduce reliance on pipes and culverts.

Additionally, it is important to be clear that these flood reduction recommendations are focused in the study area – from Highway 99 to Scriber Lake. It may not be clear what the impact upstream of the study area could have on the area that is being considered if there is additional development in the upstream area. If this occurs, additional actions may be needed upstream to improve the overall flood reduction effort.

Recommended Alternatives to Evaluate	Average Score
Recommendation #1: Regional flood storage site at Edmonds School District property.	4.4
Recommendation #2: Realign the culvert beneath the Casa Del Rey access roadway and improve the channel between Casa Del Rey and 196 th St. SW, paying particular attention to the section of the Creek that occurs mainly under the rear entrance are to the Parkview Square Business Center.	4.4

Recommendation #3: Increase flood storage at Scriber Lake and reconfigure lake inlet and outlet controls.	4.4
Recommendation #4: Use a hydraulic model to evaluate flood prone properties at a specified level of service to determine where flood prone properties are both currently and if existing stream culverts are replaced. With this knowledge, the City can consider buyouts of flood prone properties and/or incorporate distributed detention/storage ponds where possible, such as locating small storage ponds on the properties that may be bought out, or other available properties such as the school district open area (also listed as a separate measure above).	4.3
Recommendation #5: Replace the culvert(s) under SW 196 th St.	4.3
Recommendation #6: Raise the road at 188th St. SW and possibly excavate upland areas around the wetland to create more storage. One possibility is to not upsize the culvert, thus creating a sort of taller dam to impound more water in the upstream wetland.	3.9*
Recommendation #7: Raise portions of old 196th and driveway access to Park View Plaza and Great Floors and/or remove the old 196th bridge.	3.9**
Recommendation #8: Develop a continuous sediment removal program that would remove sediment deposition before, during, and on an ongoing basis after construction. This effort can be combined with channel stabilization measures to help reduce the source of sediment deposition.	3.3 – 3.9***

* Although this alternative scored lower than some of the other alternatives considered, the Committee strongly recommends this alternative because it would help reduce some of the flooding pressure on the upper and mid-areas of the corridor, which had not been captured in the initial prioritization of alternatives.

** This alternative was strongly recommended by the Committee even though the average score was less than 4.0 because the Committee has noticed a significant amount of debris collecting in this area due to the dip in elevation.

***During group discussion, the Committee combined two alternatives – ongoing Sediment Removal Program (which had an average score of 3.3) and Channel Stabilization (which had an average score of 3.9). Committee members felt very strongly that an ongoing sediment removal program should be championed by the City as soon as possible, even though this was not necessarily reflected in the average score.

Other Alternatives Considered

Other flood reduction alternatives considered by the Advisory Committee, and the average score given by Committee members for each respective alternative with respect to community considerations, are listed in the table below.

Alternative Brainstormed	Average Score
Zoning Review – Identify undeveloped areas and see where building may occur. Are setbacks adequate?	3.9

Alternative Brainstormed	Average Score
Underground storage vaults – possibly at School District site. <ul style="list-style-type: none"> • Can reduce public safety concerns surrounding above-ground detention facilities. 	3.6
Stormwater pump stations – could potentially increase storage in Scriber Lake and have a short pump station under 196 th .	3.6
Increase storm drain pipe sizes to enable in-pipe flow control when completing future road projects to support corridor flood management.	3.5
Levees/berms at north end of corridor – near Eunia Plaza/Flynn’s Carpet Cents.	3.3
Enlarge Scriber Lake by removing hill between Scriber Lake and smaller body of water.	3.3
Incentives for stormwater retrofits – Incentives for landowners to retrofit to retain stormwater on-site, such as through reduced surface water utility rates.	3.2
Regional flood storage site at empty lot southwest of the intersection of 188 th St. SW and 55 th Ave. W.	2.9
Address tributary inflows to the creek. This could be done via stormwater retrofits to reduce inflows to Scriber Creek.	2.85
Water reuse through stormwater retrofit incentives for businesses <ul style="list-style-type: none"> • Incentivize businesses to retain their water like the PCC in Edmonds. • Tax incentives for stormwater retrofits. 	2.7
Flood proofing – elevate structures so they are not damaged by flood waters.	2.2
Earthen levees – spot solutions throughout corridor.	2.2
Sediment deposition ponds – inline with the creek channel or adjacent to the creek, that can be routinely maintained to restore sediment storage capacity as needed	2.2
Diversion pipes/channels	1.9

Closing Remarks

The members of the Scriber Creek Flood Reduction Advisory Committee wish to thank the City of Lynnwood for the opportunity to provide input and feedback on the important matter of reducing flood risk associated with Scriber Creek. This process demonstrates the City’s commitment to involving the public in decisions that affect the daily lives of City residents and businesses. The Committee has made thoughtful, deliberate recommendations, and we hope our efforts are given serious consideration.

Appendices

- A. Mayor’s Authorization of Advisory Committee for Oversight of Scriber Creek Corridor Flood Study in 2014
- B. Compilation of Evaluated Alternatives Worksheet
- C. Initial Flood Reduction Alternative Summary
- D. Meeting Notes

MEMORANDUM

DATE: January 15, 2014

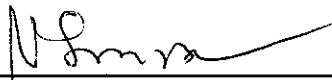
TO: Mayor Nicola Smith

FROM: Public Works Director Franz

RE: Mayor Authorization of Task Force for Oversight of Scriber Creek Corridor Flood Study in 2014

In accordance with the Lynnwood Municipal Code 2.24.010 a Scriber Creek Corridor Flood Study Task Force is hereby authorized under the control of the Director of Public Works. The purpose of this Task Force is to meet with staff during 2014 as needed and to provide input and oversight concerning the development of the Scriber Creek Corridor Flood Study. The Task Force shall consist of Lynnwood citizens and/or property owners who are affected by flooding.

I concur:



Mayor Nicola Smith

Chapter 2.24 ADVISORY BODIES – GENERAL PROVISIONS

Sections:

- 2.24.010 Definitions.
- 2.24.020 Scope of work.
- 2.24.030 Membership, nomination and confirmation process, and residency requirements.
- 2.24.040 Officers – Identification and election.
- 2.24.050 Quorums, transacting business and resolutions.
- 2.24.060 Vacancies.
- 2.24.070 Multiple appointment prohibited.
- 2.24.080 Conflicts of interest.
- 2.24.090 Liaisons and representatives.
- 2.24.100 Procedures, records and minutes.
- 2.24.110 Meetings.
- 2.24.120 Compensation and reimbursement of expenses.

2.24.130 Lobbying efforts.

2.24.140 Application.

2.24.010 Definitions.

For the purposes of this chapter, the following definitions shall apply:

An "advisory body" means any board or commission, and named board or commission in the ordinance or resolution creating the same, previously, or hereafter, created by the city council to give advice on subjects and perform such other functions as prescribed by the city council. "Advisory body" does not mean task forces, informal committees, or working groups appointed by the mayor or created by the city council for short periods of time or for specific tasks.

"Resident" means a registered voter of the city of Lynnwood or a registered voter of an area that has successfully petitioned or voted to annex to the city where an annexation ordinance has been adopted by the city council. (Ord. 2121 § 1, 1997)

Compiled Responses:

The below table ranks by average score the flood reduction alternatives brainstormed and individually scored by the Committee. If an alternative is highlighted in **green**, this means the average score was above 4.0. If the alternative is highlighted in **yellow**, this means the alternative scored between 3.0 and 4.0. If an alternative had an average score of less than 3.0, it is highlighted in **red**.

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
Regional Storage Site at Edmonds School District Property.	5	5 – This is something that will have future benefits at little additional cost.	3	3	5	5	4	5 – Combines many of the ideas/ benefits discussed by creating a regional solution on a large site with a single property owner, thereby reducing time, cost, and complexity compared to negotiating with tens or hundreds of property owners. Also, the educational benefits are an added bonus.	5	4.4
Culvert Realignment – realign culvert beneath Casa Del Rey access roadway.	5	5 – This would help grow the relationship with the property owners.	4	5	4	4	5	4 – Provides real time/ immediate benefit by eliminating a choke/pinch-point.	4	4.4
Scriber Lake Outlet Control – increase storage, re-do inlet control.	4	5 – I like this idea.	4	4	5	5	5	2.5 – While this is a good idea, the real problem is not the outlet from the Lake but the inlet, which runs uphill, thereby causing backups/flooding on the other side of 196 th . So long as water has to flow uphill to get into the Lake, changing the outlet will not significantly reduce upstream flooding.	5	4.4
Use modeling to evaluate flood prone properties at a specified level of service (e.g. 25-year level of service).	2	4	5	3	4 – Important to know where these properties	5	5	4.5 – Modeling is an excellent idea and a necessary tool in	5	4.3

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
<ul style="list-style-type: none"> Model where these properties are both with the existing culverts and if the culverts were replaced Consider buy outs of flood prone properties Incorporate distributed detention/storage ponds where possible, such as locating small storage ponds on the properties that may be bought out, or other available properties such as the school district open area (also described as a separate measure below). 					are, but not in favor of any “buy outs” without the “Zoning review.”			that it will provide much needed data that can be used throughout the basin to evaluate and design other solutions/fixes. Also, while it may not be possible to buy-out all of the identified properties, modeling should help focus on the high-priority/high-benefit properties that could be prioritized for purchase.		
Culvert Replacements – replace culverts under 196 th .	4	4 – Hard to see how the City can avoid this. Will the State help? How about raising the roadway so that the creek could flow without the need for culverts?		5	3	3	5	5 – Essentially removes the “cork” in the dam and would facilitate better drainage throughout the entire basin and would use an existing “storage” facility (the lake in the park) instead of requiring a new storage facility. One way to reduce cost and increase storage might be to tunnel underneath the log fill and create an underground storage facility that would act as a siphon into the lake.	5	4.3
Zoning Review – Identify undeveloped areas and see where building may occur. Are setbacks adequate?	5	5		3	5	5	2		2	3.9
Raising Roads – raise road at 188 th and possibly excavate upland areas around the wetland to create more storage. Do not upsize the culvert,	4	4	4	4	3 – More an accommodation than long-term solution.	4	5	3.5 – This creates an “early win” by solving a perennial problem with a simple fix.	4	3.9

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
thus creating a sort of taller dam to impound more water in the upstream wetland.								Also, providing more storage in the wetland should provide additional upstream benefits.		
Raising Roads – raise portions of old 196 th and driveway access of Park View Plaza and Great Floors.	3	2 – Don't feel this would work without culvert improvements under new 196 th .	5	5	3 – More an accommodation than long-term solution.	4	4	4 – Creates an “early win” by solving a perennial problem with a simple fix.	5	3.9
Channel Stabilization – to control erosion.	4	4 – I see this as a good thing once the creek flooding is diminished.	3	4	5	4	5	4.5 – Bigger benefits (both habitat and educational, etc.) for the buck and addresses the long-term problem with a natural, habitat-based solution.	2	3.9
Underground storage vaults – possibly at School District site. • Can reduce public safety concerns surrounding above-ground detention facilities.	4	5 – Many East coast regions have been doing this for years with good success.		2	5	2	3	3 – Good for a limited number of potential target sites that might provide system-wide benefits.	5	3.6
Stormwater pump stations – could potentially increase storage in Scriber Lake and have a short pump station under 196 th .	3	1 – This feels like passing the problem to another location.		5	4	3	4	3.5 – May help alleviate localized, short-term flooding in the lower basin but does not address the input-issue of upstream impacts.	5	3.6
Increase storm drain pipe sizes to enable in-pipe flow control when completing future road projects to support corridor flood management.	4	4 – Seems this should be two items. One for new road projects and a second for retrofitting existing pipe.		4	5	3	5	2.5 – Too complex, too much potential maintenance, too much up-front cost, and will take too long.	1	3.6
Increase creek channel size – where possible, potentially near 188 th .	3	4 – Must consider effects on downstream & upstream properties.		4	5	3	3	3 – Should be combined with some form of flow/release control to mitigate downstream impacts.	3	3.5
Sediment Removal at problem areas (such as Casa Del Rey and others);	3	4 –	3	5	5	3	2	3 –	4	3.3

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
could include volunteer participation.		Sediment removal could be on a regular schedule ongoing.						This only makes sense if it can be done on a regular basis (e.g. annually, bi-annually, etc.) because sediment transport/build-up will reoccur over time.		
Levees/berms at north end of corridor – near Eunia Plaza/Flynn’s Carpet.	3	5	4	2	5	4	3	1.5 – Not really solving downstream problems.	2	3.3
Enlarge Scriber Lake by removing hill between Scriber Lake and smaller body of water.	2	4 – My guess is that the hill is manmade from fill from some other years ago project. If so, might be easy to remove.	3	2	2– More an accommodation than long-term solution.	5	4	3.5 to 4 – Only if coupled with inlet fix discussed above.	4	3.3
Incentives for stormwater retrofits – Incentives for landowners to retrofit to retain stormwater on-site, such as through reduced surface water utility rates.	3	2			5	2	3	3.5 – Could actually be a high-benefit alternative if the City focused on a few properties that could provide large benefit/ greater return on investment instead of trying to get hundreds of smaller properties involved. One or two large-scale facilities in well-placed locations could provide basin-wide benefits.	4	3.2
Regional Storage Site at empty lot south of 188 th on 55 th Ave.	4	2 – Future development could be impeded by having a pond on the property.	4	1	5	4	2	2.5 – Only if it provided controlled-release upstream storage to mitigate and control downstream effects.	2	2.9
Address tributary inflows to the creek. This could be stormwater retrofits to reduce inflows to Scriber Creek.	2	2 – All new developments need to do this at their cost.	4	1	3	3	3	3.5 to 4 – In general, this is a great approach because source elimination goes a long way	4	2.85

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
								to addressing flooding impacts. The problems/ drawbacks are that it will be time consuming, expensive, complex, and may depend on waiting for subject-property redevelopment in order to be implemented on a parcel-by-parcel basis.		
Water reuse through stormwater retrofit incentives for businesses <ul style="list-style-type: none"> Incentivize businesses to retain their water like PCC in Edmonds. Tax incentives for stormwater retrofits. 	2	5 – Would need to educate the property owners about how this works.		1	5	3	1	1.5 – Probably unfeasible in the current regulatory regime/climate and would only produce benefits from big source/user properties and not small-scale residential properties.	3	2.7
Flood proofing – elevate structures so they are not damaged by flood waters.	2	1	5	2	2 – More an accommodation than long-term solution.	1	1	1 – This is an expensive and probably unfeasible measure because it is difficult if not impossible to lift and elevate some of the impacted structures (i.e., large, multi-family housing units or large commercial structures). While it may help certain single-family dwellings, it is a Band-Aid, not a long-term solution.	5	2.2
Earthen Levees – spot solutions throughout corridor.	3	1 – Expecting resident cooperation might be too much to ask.	2	1	2	4	4	1.5 – Just a Band-Aid, not a solution because they do nothing to slow the discharge or eliminate/ alleviate downstream flooding impacts and instead just focus and funnel flow downhill.	1	2.2

Flood Risk Reduction Measure	#1	#2	#3	#4	#5	#6*	#7	#8	#9	Average
Sediment Deposition Ponds	3	1		1	5	1	3	1.5 – A Band-Aid since they do not address the source of sediment and instead just deal with a problem instead of fixing/eliminating the source.	2	2.2
Diversion channels	2	1 – No immediate impact.		1	3	1	3	1 – Just moves, not solves, the problem.	3	1.9

* This individual commented that alternatives that support flood reduction, enhance habitat and open spaces, result in park improvements, and have educational benefits and opportunities to get the community involved are preferred. These types of alternatives are consistent with the City’s Lynnwood Community Visioning document. Alternatives that support and enhance a future streamside trail system leading from Scriber Creek Park to Lund’s Gulch and Puget Sound are supported.

Flood Reduction Alternatives Summary

When Committee members ranked the flood reduction alternatives, the following information was provided. Considerations in the table were both brainstormed by Committee members at the May meeting and also provided by the technical consultants.

Avoidance Strategies

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance*	Habitat Improvements*
<p>Sediment Removal at problem areas (such as Casa Del Rey and others); could include volunteer participation.</p>	<p>Score: - Educational benefits, this is an opportunity to get community members out in the stream and teach them about the stream.</p>	<p>If implemented alone, will not result in noticeable flood reduction, but could locally improve flow conveyance.</p>	<p>Low</p>	<p>- Sediment removal as part of a holistic plan may be more permissible. - Regulators may be more amenable if removal is done by hand instead of by heavy equipment. - Access on private land is an obstacle.</p>	<p>Not a concern since post-excavation there is no maintenance expected.</p>	<p>Difficult to improve habitat with this measure, unless the channel bed is over-excavated to allow room for backfill with natural stream substrate.</p>
<p>Use modeling to evaluate flood prone properties at a specified level of service (e.g. 25-year level of service).</p> <ul style="list-style-type: none"> • Model where these properties are both with the existing culverts and if the culverts were replaced • Consider buy outs of flood prone properties • Incorporate distributed detention/ storage ponds where possible, such as 	<p>Score: - Environmental benefits, more open space. - Reduced occurrence of flooding of inhabited properties, which could slightly enhance property values nearby. - Purchased properties could provide opportunities for recreational/ interpretive uses</p>	<p>- Having small storage ponds along the creek corridor would help reduce flooding elsewhere. - Purchasing larger areas (such as school district open area) could add even more storage.</p>	<p>Medium to high, depending on how many properties bought out and extent of storage added to the system.</p>	<p>Relatively difficult and time consuming given need to buy properties one-by-one, and property buyouts not a common approach for the City.</p>	<p>New flood storage ponds on cleared properties would generally not require maintenance beyond occasional inspections, litter removal, and pruning of new plantings.</p>	<p>New flood storage ponds could be designed to provide off-channel habitat for fish, and to provide habitat for other wildlife.</p>

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance*	Habitat Improvements*
locating small storage ponds on the properties that may be bought out, or other available properties such as the school district open area (also described as a separate measure below).	and educational purposes (partner with school).					
Flood proofing – elevate structures so they are not damaged by flood waters.	Score: While damage to structures would be reduced, continued flooding of roads and properties could be a nuisance and/or safety concern.	Prevents flooding of the structure that is raised, but minimal effect on flood levels elsewhere in the corridor (e.g. road flooding would continue). One plus is that this option would not increase downstream flows.	Medium to high depending on how many structures were raised.	Moderately difficult and time consuming since the City does not have a process in place to routinely do this. In addition, individual property agreements would be needed.	No maintenance needed once the structure is raised.	None.
Zoning Review – Identify undeveloped areas and see where building may occur. Are setbacks adequate?	Score:	Prevents future flooding from being worse, but no effect on existing flooding problems.	Minimal.	Moderately complex City process to adopt modified zoning designations.	Not applicable.	Not applicable.
Incentives for stormwater retrofits – Incentives for landowners to retrofit to retain stormwater on-site, such as through reduced surface water utility rates.	Score:	Minor, unless hundreds of properties take part.	Low.	Moderately complex, and potentially would take many years to get a large number of properties involved. Past efforts by other	Simple.	None.

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance*	Habitat Improvements*
				communities have been marginally successful.		

Structural Solutions

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
Raising Roads – raise road at 188 th and possibly excavate upland areas around the wetland to create more storage. Do not upsize the culvert, thus creating a sort of taller dam to impound more water in the upstream wetland.	Score: Potential park benefits.	Would need to look at impacts upstream, as there are already some flood prone areas upstream of the study corridor.	Medium to high.	Moderately complicated due to ripple effects on roadside areas, temporary traffic rerouting, getting permit approvals, etc.	No additional maintenance burden.	Potential for enhanced or somewhat degraded habitat conditions upstream of road depending on how the project is designed.
Raising Roads – raise portions of old 196 th and driveway access of Park View Plaza and Great Floors.	Score: Significant partnership opportunities.	- Need to consider upstream impact of this project if culverts are not enlarged. - Significant improvement in accessibility to businesses during high flow events	Medium.	- Would not necessarily have to deal with permits since there would be no in-water work. - Could be implemented quickly with private landowner agreements.	No additional maintenance burden.	None within the creek, though reduced incidence of creek flow spilling onto roadways could benefit fish by keeping them in the creek channel.
Regional Storage Site at Edmonds School District Property.	Score: Co-benefits include educational partnerships, environmental, and	Potentially significant.	Medium to high.	Somewhat time consuming and complex due to need for property use agreement,	Not much maintenance needed beyond routine inspections and litter removal,	Substantial habitat benefits could be achieved in the design.

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
	parks potential.			multiple permits, and substantial design effort.	similar to City-owned stormwater ponds.	
Regional Storage Site at empty lot south of 188 th on 55 th Ave.	Score: No wetlands on property.	Minor.	Medium.	Somewhat time consuming and complex due to need for property acquisition, multiple permits, and design effort.	Not much maintenance needed beyond routine inspections and litter removal, similar to City-owned stormwater ponds.	Moderate habitat benefits could be achieved in the design.
Increase creek channel size – where possible, potentially near 188 th .	Score:	Minor improvement in flooding as wider channel allows greater conveyance capacity, thus reducing water surface level and reducing incidence of overbank flow.	Medium.	Moderately difficult and time consuming as it would require private property owners to give up some of their property, and would require numerous permits.	No maintenance needed.	Potentially substantial habitat enhancement could be achieved.
Levees/berms at north end of corridor – near Eunia Plaza/Flynn’s Carpet.	Score: Levees and berms can have trails on top.	- Minor, localized benefit. - Need to consider upstream impact of this option. - This option could be implemented along with raising 188 th to get added storage.	Low – could be a cost-effective short-term solution.	Relatively easy, pending property owner approval and participation in funding.	Minimal maintenance requirements.	None.
Earthen Levees – spot solutions throughout	Score: - Not aesthetically	Minor, localized benefit.	Low.	Relatively easy, pending property	Minimal maintenance	None, unless significant amount

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
corridor.	pleasing unless densely planted and carefully designed to blend into landscape topography. - Could lower property values.			owner approval and participation in funding.	requirements.	of plantings on levee improve upon existing wildlife habitat locally, in which case benefits would be minor.
Diversion channels	Score:	Potentially significant within the corridor, but raises concern for flooding at downstream outlet location.	High due to numerous property acquisitions or easements, utility conflicts, etc.	Complex and time consuming, and potentially not feasible.	Substantial maintenance requirements.	None, other than habitat benefit that may occur in existing channel due to reduced high flow effects on fish and aquatic life.
Culvert Realignment – realign culvert beneath Casa Del Rey access roadway.	Score: Significant partnership opportunities.	- Could solve more than one issue. - Have to consider downstream effects.	Medium.	Straightforward once private site owner agreement reached, including participation in funding.	Minimal maintenance requirements.	None, unless channel habitat enhancements included in project upstream and/or downstream of culvert (which would likely be a permit requirement).
Culvert Replacements – replace culverts under 196 th .	Score:	Potentially substantial upstream of 196th - would allow water to flow faster and help lower end of study corridor, but could worsen flooding	Medium to high.	- Log fill beneath 196 th roadway could pose significant construction challenges and increase costs. - Requires multiple permitting agencies	Moderate.	None, unless channel habitat enhancements included in project upstream and/or downstream of culvert (which would likely be a permit

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
		downstream unless otherwise mitigated.		to be involved including WSDOT. - Time consuming.		requirement).
Scriber Lake Outlet Control – increase storage, re-do inlet control.	Score: - Co-benefits include educational, park, and environmental benefits. - Huge opportunity to improve Park.	Would need to implement projects upstream to reduce flooding, such as culvert replacements.	Low.	- Complex because it would require a number of regulatory and topography considerations. - Would need coordination with Parks Department.	Moderate.	Potential for enhanced or somewhat degraded habitat conditions surrounding the lake depending on how the project is designed.
Sediment Deposition Ponds	Score:	Minor.	Medium.	Moderately difficult due to need for connection to creek and the fact that regulatory agencies do not like these kinds of facilities.	Moderate.	- Minor, due to prevention of sedimentation within the existing channel and its adverse effects on habitat. - Expect that some habitat enhancement would be needed to obtain permits.
Channel Stabilization – to control erosion.	Score: Channel stabilization and restoration could be introduced with some sort of “adopt-a-stream” program for the community.	Minor as a standalone project. However, long term advantage is removal of source sediment that deposits in the reaches by the old 196 th road.	Low to moderate.	Straightforward once private site owner agreement reached, including participation in funding.	Minimal.	Minor if native riparian vegetation is planted on improved banks (i.e., “bioengineered” design).

Watershed-wide Projects

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
<p>Enlarge Scriber Lake by removing hill between Scriber Lake and smaller body of water.</p>	<p>Score: Can add a walking path(s) around the lake; park improvements.</p>	<p>Potentially substantial in vicinity of lake and downstream. Other system improvements (such as culvert replacements) would still be needed upstream.</p>	<p>Medium to high.</p>	<p>Complex and time consuming, subject to major public involvement process and numerous permits.</p>	<p>Moderate.</p>	<p>Moderate, given that existing habitat in the park is generally high quality.</p>
<p>Address tributary inflows to the creek. This could be stormwater retrofits to reduce inflows to Scriber Creek.</p>	<p>Score:</p>	<p>Potentially significant if large-scale stormwater runoff flow reductions are accomplished.</p>	<p>High.</p>	<p>Complex and time consuming, with an uncertain number of properties and City staff resources needed to implement.</p>	<p>Potentially substantial.</p>	<p>None, other than habitat benefit that may occur in existing channel due to reduced high flow effects on fish and aquatic life.</p>
<p>Water reuse through stormwater retrofit incentives for businesses</p> <ul style="list-style-type: none"> • Incentivize businesses to retain their water like PCC in Edmonds. • Tax incentives for stormwater retrofits. 	<p>Score:</p>	<p>Minor.</p>	<p>May not have the ability to affect tax structure.</p>	<p>Straightforward once private site owner agreement reached, including participation in funding of reuse infrastructure. One potential issue is that the Lake Washington basin is a Closed (water right) Basin and while rain barrels have been</p>	<p>Simple to moderate depending on reuse components.</p>	<p>None.</p>

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance	Habitat Improvements
				approved in the basin, other forms of rainwater reuse may not be permitted.		
<p>Underground storage vaults – possibly at School District site. - Can reduce public safety concerns surrounding above-ground detention facilities.</p>	<p>Score:</p>	<p>Minor to moderate depending on size.</p>	<p>Medium to high. Cost for underground storage is generally high, however, it does potentially allow the continued use of the land (i.e., parking).</p>	<p>Potentially complex and time consuming, in part due to permitting related to connection to creek and getting private property approvals.</p>	<p>Moderate (harder to maintain underground facilities than above ground for same amount of flow storage).</p>	<p>None, other than perhaps minor habitat enhancement at connection to creek, as result of permit requirements.</p>
<p>Stormwater pump stations – could potentially increase storage in Scriber Lake and have a short pump station under 196th.</p>	<p>Score:</p>	<p>Potentially substantial in the lower part of the corridor, if there is no adverse effect on flooding at outlet location. Upper corridor would still need improvements (e.g., culvert replacements).</p>	<p>High.</p>	<p>Complex and time consuming, in part due to permitting related to connection to creek.</p>	<p>High.</p>	<p>None, other than perhaps minor habitat enhancement at connection to creek as a result of permit requirements.</p>
<p>Increase storm drain pipe sizes to enable in-pipe flow control when completing future road projects to support corridor flood management.</p>	<p>Score:</p>	<p>Potentially significant if done on large scale in several tributary drainage networks.</p>	<p>High, particularly if done as retrofits not associated with other road project improvements.</p>	<p>Complex and time consuming; could take decades to fully implement.</p>	<p>Moderate to high.</p>	<p>None, other than habitat benefit that may occur in existing channel due to reduced high flow effects on fish and aquatic life.</p>

**Note: these evaluation criteria are more technical in nature and we are not requesting that Committee members will provide ratings for these criteria. However, these elements are extremely important to consider in any decision-making process and we listed these criteria for you to keep in mind during this process. The City has provided some narrative under these criteria to give Committee members an overview of the types of issues that may be associated with each project.*

***Under community considerations, a higher score means the alternative positively addresses most, if not all, of your considerations outlined under “community considerations” below.*

At the April Advisory Committee meeting, Committee members reviewed and generally agreed on a set of criteria. The evaluation matrix above captures these criteria as follows:

Flood reduction

- Potential to **reduce flooding** in study area
- Effects on **flooding downstream** of Scriber Lake

Community Considerations

- **Aesthetics** impacts/benefits (appearance, odors, mosquitoes, etc.)
- **Public safety** considerations
- **Land ownership**/easements
- **Partnership** opportunities
- Potential to help management of **future development**
- Effects on **property values**

Cost

- Financing/**funding** (who is paying for it – increase for rate payers?)
- **Construction costs**

Habitat improvements

- Effects on **stream and riparian habitat**
- Ability to return corridor to a more **natural flow pattern**
- Use of **native plantings**
- Reduction of **sediment transport**

Ease of construction/implementation

- **Implementation** feasibility (design and construction)
- **Permitting requirements** (Is the project readily permissible?)
- **Timing** – how quickly will the project be successful?

Ease of maintenance

- **Operation and maintenance requirements** and costs
- Ease of **maintenance**
- **Permitting requirements** for maintenance work

Scriber Creek Advisory Committee DRAFT Meeting Summary

March 17, 2014, 5:00 p.m. – 7:00 p.m.
19100 44th Avenue West, Lynnwood, WA 98046
Lynnwood Civic Center

Action Items

	Action Items	Person Responsible
1.	Review Operating Protocols and send any suggested revisions to Shanese Crosby (scrosby@triangleassociates.com) by April 21, 2014.	Committee Members
2.	Outline the area of service for Lift Station 16 and the proposed construction schedule at the April 21 st meeting.	City of Lynnwood
3.	Coordinate with David Plodwick to examine the gate valve on his property.	City of Lynnwood
4.	Provide information on what fish are in the creek at the April 21 st meeting.	City of Lynnwood
5.	Provide information on the history of the old 196 th bridge and the fill that it was built upon.	City of Lynnwood
6.	Roz will take a picture of how the creek behaves between Casa Del Rey and the 196 th bridge during a rain event.	Roz Smith

Welcome/Introductions

The purpose of the meeting was to discuss the framework of the Advisory Committee including the Committee's purpose, protocols, communication methods, and plan for the upcoming months, as well as describe the stream study corridor, the problem, assessment tools, and how the Advisory Committee will fit into the overall Study.

Attendees

Advisory Committee	Project Team
Nick Aldrich , Parks Board	Robert Victor , City of Lynnwood Project Manager
Josh Brower , Representing Great Floors Owner	Jared Bond , City of Lynnwood
Myran Che , Eunia Plaza	Jeff Elekes , City of Lynnwood
Nora Chin , Citizen	Mark Ewbank , Herrera
Dave Gilbertson , Parks Board	Mike Giseburt , Leidos
Brian Harding , Edmonds School District	Cynthia Carlstad , Triangle
Larry Ingraham , Citizen	Shanese Crosby , Triangle
Chris Nyhus , Park View Plaza Business Owner	
David Plodwick , Citizen	
Roz Smith , Casa Del Rey	
Eric Whitehead , Casa Del Rey	

Opening

Cynthia Carlstad (Triangle Associates) opened the meeting and reviewed the agenda. The Advisory Committee then introduced themselves and briefly discussed what they expected from their participation on the Committee (outlined below).

Expectations

- See what can be done to reduce flooding
- Reduce flooding
- Look for opportunities to work with Parks
- Learn about the issue and help where possible
- Find solutions – drainage control
- Listen and learn
- Solve the problem and contribute to the solution
- Listen and help
- Get rid of flooding

Cynthia then reviewed the Committee’s purpose, workplan, and the operating protocols. The Phase 1 workplan calls for the committee to learn and provide input about the flooding issues in the study corridor, and consider the types of actions and solutions that could be evaluated in Phase 2 of the project. The Committee’s goal is to develop a memo to be presented to City Council that describes the Committee’s preferences for what solutions will be evaluated. This memo can include differing perspectives from individuals in the committee. Cynthia asked the group to review the operating protocols by the next meeting and send any suggested revisions to Shanese Crosby.

Questions

City/Project Team answers are designated in italics.

- There seems to be two problems in this corridor – a stormwater problem and a sanitary sewer issue. Is this effort only looking at the stormwater problem?
 - *Yes.*
- Is it possible for the City of Lynnwood (City) to provide the Committee with some background on how they are addressing the sanitary sewer issue?
 - *Yes. The City is currently under contract to build Lift Station 16, which will be located near Great Floors on 56th. The City expects to complete the Lift Station in the next one to two years. The sanitary sewer issue is tied to capacity concerns, so the City is limited in the options it can pursue. The sewer utility rate increase in January was specifically to help pay for Lift Station 16 and a few other lift stations in the City.*
- Could the City provide the Advisory Committee with an overview of the area the Lift Station is designed to serve and the construction schedule?
 - *Yes, this will be done at the April meeting.*
- Is the City looking at how downstream water levels in Scriber Lake may affect flooding in the study corridor?
 - *From the Team’s understanding, there is no backwater coming from Scriber Lake that is contributing to the flooding problems. The study corridor does purposely extend to Scriber Lake so that lake outlet control can be considered.*

Comments

- If the City was able to control the outlet of Scriber Lake, it could really help the problem. When the City knows an event is coming, it could drain the Lake.

- The Committee and Project Team should remember that Scriber Creek is a jewel for Lynnwood. As the Committee discusses solutions, it should keep in mind that this is an opportunity to better the City, not just stop the flood problem.

Technical Presentation

Mark Ewbank (Herrera) gave an overview of the study corridor and discussed the causes of Scriber Creek flooding. Highlights from the presentation include:

- Flooding is a natural occurrence. In this corridor, development has increased the frequency and severity of the flooding.
- The creek channel has been confined by development and is not quite big enough in some areas to adequately carry the amount of water required during storm events. This is also true of some culverts.
- The channel is at a reverse grade as it approaches the 196th crossing and does not have efficient conveyance to allow the water to flow through this area.
- Storm drainage conveyance systems in this study area and throughout the city are typically sized for peak flows in a 25-year storm event. It would be difficult to build capacity for a higher storm event (e.g. 50 or 100-year event) as it requires a significant monetary investment and much larger structures.
- Once street catch basins are full, the water will flow down the path of least resistance, which sometimes means it flows through private properties.
- In the late 1990s, the City installed a regional stormwater detention pond in line with Scriber Creek that holds 50 acre feet of water on the NW corner behind the Walmart parking lot. Right now, the City can hold back a greater amount of water in this facility for eight months out of the year, but it is required to lower the facility outlet for the months of March to June coinciding with the early to mid-growing season for natural vegetation in the facility. The lowered outlet reduces its storage capacity in those months.

Questions

- What buffer zone is required for development along Scriber Creek?
 - *It varies from 70 to 110 feet, with an additional 15 feet required for buildings. The buffer zone is ideally planted with native vegetation.*
- Near 5410 189th Pl SW, there is a headgate on a storm pipe. Can this be monitored or controlled?
 - *The City is unaware of the purpose of this gate and would like to take a look at it.*
- Are culverts required to be fish passable?
 - *Yes, and this will be discussed at a later meeting.*
- Can we explore the option of increasing storage in the retention pond near Walmart?
 - *Yes. It is important to keep in mind the permitting requirements that come with a project like this. We have to consider impacts to wetlands, fish habitat, and other factors.*
 - *The wetland just upstream from 188th could be a candidate for improvements if mitigation is needed for a solution such as enlarging a detention pond.*
 - *The culvert under 188th has capacity restrictions that help back the water into that wetland.*
- Who owns the area near the wetland (north of 188th)?
 - *Primarily the City, but some of the land is owned in partnership with Parks.*
 - *In this area, flooding is limited mostly to City property on the east and west sides of the Creek, but there is some flooding of private property to the north.*

Comments

- There is a lot of sediment going into the creek. On the Casa Del Rey property, we have a tremendous amount of sediment that is taking away the creek's capacity to keep the water in the channel. The sediment has just built up and up.
 - *Sediment accumulation is a typical problem when the natural flood plains are built up.*
- The Delridge neighborhood in West Seattle built terracing to help with flooding. They did this through volunteers.
- When it rains and/or snows, a significant amount of water drains down from the street into the creek at the bottom of the hill (189th St SW and 55th Ave SW). Over the years, erosion has occurred in this area. Depending on how much rain, the duration of the storm event, and the force of water flows downstream, the water will move dirt, rocks, and grass into the creek. When dirt and sediment build up in the creek, then during rain events, the water rises higher than normal.
- When it snows, and then rains, the area sees tremendous flooding (e.g. December 2007).
- Other countries have water collection systems, such as rain barrels. Could this be required when new developments are built? Residents could use the water for their gardens or other activities.

Photos of the Corridor

Mark shared photos of the corridor taken recently by City staff, allowing the Committee to go on a virtual tour of the study corridor. Highlights include:

- There are some manmade features (such as a concrete block walls) that border the creek. Removing these structures and building the slope in a way to increase flood storage and flow conveyance capacity could be a low-cost solution.
- There are two large culverts under the driveway of Eunia Plaza, along with a "birdcage" debris rack. The cage is protecting one of the two culverts from blockages.
- Any solutions that affect the wetlands near 188th or the 196th bridge would require a number of environmental permits and wetland improvements (mitigation) somewhere else in the study area.
- As the creek moves downstream of 188th, the channel gets smaller.
- North of the School District property, the City did some habitat restoration work last summer, which included adding woody debris for fish habitat. Some of the sediment will fall out behind these logs.
- At 189th SW looking downstream, there is an inefficient culvert crossing. The flow is bouncing off the wall until it finds its way into the culvert. There is also a sewer manhole right next to the culvert entrance, which would need to be moved if we decide to give the stream more space in this area. This is an issue likely to arise in many locations in the creek corridor: the presence of water, sewer, and other utilities could be a constraint or an added cost to relocate them.
- There is a water main under the bridge on the north (upstream) side of 196th, which will have to be moved if we decided to straighten out the creek between 196th and Scriber Lake. This would be expensive.
- Right before Scriber Lake there are two culverts conveying the creek under 196th. When water enters this area, it is sent through an oil-water separator. When there is a rain event, the water bypasses this system because of lack of capacity.

Questions

- Can you still use round corrugate metal pipes as culverts?
 - Yes.

Comments

- Just northwest of photo point 1, there is a significant source of the sediment. There are some box culverts that seem to be heavily silted near the vicinity of Hertz, where it intersects with Highway 99.
- Historically, the last week of November is the wettest week of the year.
- The inlet of the storm pipes start to creep up near Walmart and the data center, but this may be a site specific problem.
- In a storm event, the 190th culvert turns into a lake.
- There is erosion near 5422 189th St SW on the west side of the downstream side.
- When there are heavy rains, the water leaves the channel on the School District's land and flows to the left of the chain link fence. There is a stormwater pipe that discharges toward the creek just upstream from the School District's detention pond. Water from the pipe doesn't make it to the creek, and flows overland instead.
- All the vegetation growing in the creek on Casa Del Rey's property was not there a couple of years ago – it is growing in recent sediment deposits.
- Casa Del Rey has seen water back up to the top of their fence. The bottom of the fence is pressure built plywood that is slowly failing.
- During a rain event, the creek makes its own channel between Casa Del Rey and the 196th bridge.

Closing

The Committee agreed to hold the third Monday of each month as their standard meeting time. The next meeting will be April 21st, 2014 from 5:00 p.m. to 7:00 p.m.

Scriber Creek Advisory Committee DRAFT Meeting Summary

April 21, 2014, 5:00 p.m. – 7:00 p.m.
19200 44th Avenue West, Lynnwood, WA 98046
Lynnwood Library

Action Items

	Action Items	Person Responsible
1.	Send out timeline graphic to Advisory Committee members.	Triangle
2.	Develop template for recommendations memo for Committee review.	Triangle

Welcome/Introductions

The purpose of the meeting was to identify and describe site specific problem areas and identify and discuss the Advisory Committee's goals, objectives, and evaluation criteria related to the Scriber Creek Flood Reduction Study.

Attendees

Advisory Committee	Project Team
Josh Brower , Representing Great Floors Owner	Robert Victor , City of Lynnwood Project Manager
Nora Chin , Citizen	Jared Bond , City of Lynnwood
Ed dos Remedios , Citizen	Jeff Elekes , City of Lynnwood
Brian Harding , Edmonds School District	Mark Ewbank , Herrera, Consultant Project Manager
Larry Ingraham , Citizen	Mike Giseburt , Leidos
Chris Nyhus , Park View Plaza Business Owner	Cynthia Carlstad , Triangle
Matt Pease , Business Owner	Shanese Crosby , Triangle
David Plodwick , Citizen	
Roz Smith , Casa Del Rey	
Eric Whitehead , Casa Del Rey	

Opening

Mayor Smith (City of Lynnwood) opened the meeting and thanked everyone for participating in this process. Cynthia Carlstad (Triangle Associates) then reviewed the agenda and work plan, and led the Committee in a round of introductions.

General Business

There were no comments on the operating protocols or the meeting summary. Committee members can send any suggested comments to Shanese Crosby (Triangle Associates). Meeting summaries will be posted online, with addresses removed.

Identification & Discussion of Flooding and Drainage Problems

Advisory Committee members identified site specific issues and commented on when flood events have occurred in the neighborhood.



Comments organized by site location (green boxes):

Site 1:

In 2012, flooding of the garage and above the finished floor occurred at the northwest corner of 55th Ave W and 189th St SW.

Site 2:

In 2006, flooding up to the back of the house at the west end of 189th Pl SW was observed.

Site 3:

Portions of the channel in the vicinity of the 190th St SW crossing are armored with rock. On occasion, some rocks have been observed to be picked up and carried downstream.

Site 4:

- The parcel at the southeast corner of the intersection of 190th St SW and 55th Ave W was flooded above the finished floor in 2006. The adjacent intersection floods more frequently.
- Creek flooding has not affected the three parcels at the west end of Brookmore Estates (the west end of 192nd St SW).

Site 5:

- There is a storm drain emanating from the west that directs flow toward the creek with an outlet along the north side of the Edmonds School District stormwater pond. When it rains hard, that storm drain “shoots” flow out of it under pressure. When there is a flood event in the creek, the flow coming out of that storm drain goes overland around the stormwater pond (between creek and stormwater pond) and does not enter the creek until it gets closer to Casa Del Rey. The pond outflow combined with overbank creek water and the aforementioned storm drain flow sheet flows over the floodplain toward Casa Del Rey.

Site 6 (Casa Del Rey):

- The road on the south side of Casa Del Rey was overtopped during the 2007 event.
- Casa Del Rey residents expressed that they do not think the school district detention pond is working like it is supposed to.

- When the creek is running high, the zig zag alignment approaching the Casa Del Rey fence line gets bypassed and the flow takes a wide diagonal swath/approach to Casa Del Rey.
- Casa Del Rey didn't experience overbank flooding in Nov 2012.

Site 7 (Business Park – Great Floors & Park View Plaza):

- The creek flooding has not been above the Great Floors finished floor elevation.
- The building west of Great Floors has not been flooded above the finished floor, but has been subject to sanitary sewer backups.
- Upstream of the old bridge, during high flows the creek jumps out of the bank and into the Great Floors detention pond and heads to the street.

Site 8 (Just Downstream of Park View Plaza):

- A high water mark up to the 2nd board of the old bridge was observed during the 2007 event.
- Old 196th street is inundated very frequently and not just during big storms.

Site 9:

- There is frequent sediment build-up in the lower section of the creek around the old bridge crossing, including the short section of upstream channel.

Site 10:

- Between the old bridge and the culvert under 196th street (where the creek flows west), there was mitigation planting done along the channel for the upstream regional detention project. The planting is overgrown and there is concern that it negatively affects the stream conveyance.

Site 11:

- The upstream end of the culvert crossing of 196th street may have settled and this culvert may be at reverse grade and negatively affecting conveyance.

Project Goals, Objectives, & Criteria

The Advisory Committee broke into two groups to discuss five questions related to the members' goals, objectives, and preferred evaluation criteria. A one-page handout on goals, objectives and example criteria was provided (see **Attachment 1**). The remarks from each group's report-out are shown in the tables below.

Question #1: Other than flood reduction, what do you need to see at the end of the project to consider it a success?
Create a more natural/sustainable area along 196 th and along the Creek.
A commitment from the City to maintain whatever is constructed.
Maintenance of corridor/channel.
Partnerships for culvert and channel maintenance.
Aesthetics (improved aesthetics along 196 th).
High probability of success.
Reducing obstacles along creek (culverts, pinch-points, such as the culvert by Casa Del Rey).
Other uses – education, etc.
No bad impacts downstream.
Alleviate perpetual standing water on roadway (Great Floors, CDR).
Holistic functionality of corridor.
Easier regulatory hurdles (e.g. use of a long-term permit with set guidelines).

Question #2: Looking at the example criteria, what’s missing?
Time to design/permit/construct (schedule – how quickly will the project be successful?)
Selection of proper plantings where applicable.
Removal of invasive species.
Financing/funding (who is paying for it – increase for rate payers?)
Removed from designated flood zone (change flood zone designation).
25-year flood protection.
Partner with school district, community college, and parks and education opportunities.

Question #3: In your opinion, what is the most important criterion the City should consider?
Implementation of plan.
No WDFW.
Maintenance and ease (e.g. pre-approved rules).
Use of volunteers to assist with maintenance.
Reduced sediment transport.
Effects on humans.
A feasible, buildable alternative that can be maintained over the long term.
Assurance that it will work.
Manage future development to control impacts to the creek/environmentally sensitive areas.
Financing.

Question #4: The example criteria lists “social impacts/benefits” as a criterion. What does that mean to you?
Financial impact of owning property near the Creek.
Sensitive to private property.
Increase property values.
Removal of invasive plants and replacement with native plants.
Operate corridor as a utility.

Question #5: What do you think are the biggest obstacles/constraints that may affect the project’s success? What are ways to address these constraints?
Regulations.
Agencies.
Cost.
Cost and permitting.
<i>Solution:</i> Partnerships.
<i>Solution:</i> Local Improvement District (LID) or Flood District.
<i>Solution:</i> Define responsibilities of the City, Property Owners, DOE/State, Edmonds School District.

Follow-up Requests from Meeting #1

The City of Lynnwood presented information on two follow-up requests from the March Advisory Committee meeting.

Lift Station 16

The Lift Station is currently at the 30% design stage. The City has found a contractor, who is expected to finalize the design in July/August 2014. The City anticipates construction beginning in September/October 2014, with the station up and running 12 to 18 months after construction begins. Upon completion, the sewer system will be repaired and sewer backups should no longer be an issue.

Questions

- How far is Lift Station 16 to the next closest lift station?
 - *Lift Station 16 will not connect with the closest lift station. It will connect with Lift Station 12 in Edmonds. The sewage will be pumped up 196th, across Scriber Creek Road, until it eventually hits a gravity line that transfers the sewage to Station 12.*
- Where is the Station located?
 - *Lift Station 16 is located upstream of the School District at the Old Lynnwood City Hall site. It will pick up the sewer line at the school district site.*
- Will the design take care of the issues associated with significant rainfall?
 - *Yes, because the Lift Station is a peaking pump station. The City has been assured by the engineers that there will not be a sewage back up again associated with this system.*
- Can the pump have enough influence to lower the water table?
 - *No. It only takes what's in the sewer pipe. There will be a new sewer bypass point at the manhole upstream of Casa Del Rey.*
- Will the pump have axillary power?
 - *Yes, it will have a diesel generator in case of a power outage. Lift stations are considered a critical facility, like a hospital or City Hall.*

196th Street SW / State Route 524 Fill

Historical photos were displayed to illustrate how the road fill supporting the modern-day 196th Street SW was constructed and how its characteristics affect potential flood reduction solutions. Importantly, because a “raft” of logs was placed for hundreds of feet of length to spread the weight of the road fill on the soft, wet soils, it will be difficult to realign the creek, as it would require boring through the logs. The City commented that, even considering this difficulty, Creek realignment is on the table.

- The original “Old 196th” roadway (which included a bridge that is still there) was constructed in 1932 as a two lane highway.
- In 1960, the State determined that the two-lane highway could no longer support traffic volumes and expanded the bridge to a four-lane highway. The road footprint was extended in the direction of Scriber Lake, so the north edge of the lake, which formerly extended close to “old 196th”, was filled in. During construction, the weight of the new road fill caused major lateral displacement of the soft soil beneath it, creating what has since been known as the North Lagoon as the displaced soil formed a raised mound on the north side of the lake (south side of the lagoon) that partially isolated the low-lying ground amidst the lagoon area.
 - The large-scale soil displacement into the Lake reduced the Lake’s water storage capacity by 50%.
- After the failure, the City decommissioned the old wooden bridge. The financial resources to reconstruct the bridge for vehicular traffic make reconstruction an infeasible option, especially considering that the bridge is a wooden structure at the end of its life.
- Now, the bridge is used for pedestrian traffic and for utilities.

Next Steps

The next meeting will be May 19th, 2014 from 5:00 p.m. to 7:00 p.m.

Attachment 1 – Goals, Objectives, & Evaluation Criteria

This document provides example goals, objectives, and evaluation criteria for the Scriber Creek Flood Reduction Advisory Committee to consider as the Committee develops their own goals, objectives, and evaluation criteria for flood reduction solutions related to Scriber Creek.

Goal

A goal statement reflects what the project is working towards. An example for the Scriber Creek Flood Reduction Study is:

“With a comprehensive approach for defining and evaluating alternatives, it is expected that the study will result in recommendations for a suite of feasible actions to reduce flooding to desired levels. Community support for the recommendations should be accomplished via implementing a robust public and stakeholder involvement process. It is critical that these recommendations include accurate predictions for the costs to implement them.”

Objectives

Many times objectives fall out of the goal statement. Objectives should be “SMART” (specific, measurable, achievable, relevant, and time-bound). In this example, objectives for the Scriber Creek Flood Reduction Study could be:

- Comprehensively define and evaluate potential flood reduction alternatives that can be funded in entirety within 10 years of study completion
- By April 2015, develop a recommended suite of feasible flood reduction alternatives that, when implemented, will reduce flooding to desired levels
- Meaningfully involve the community in the decision-making process
- Accurately predict costs for potential flood reduction alternatives

Evaluation Criteria

Engineers use evaluation criteria to determine which potential solutions meet the project’s goals and objectives. Criteria should be specific and measurable (ranging from a direct measurement to a scale, such as high, medium, low). For the Scriber Creek Flood Reduction Study, potential criteria include:

- Potential to **reduce flooding** in study area
- Effects on **flooding downstream** of Scriber Lake
- **Social impacts/benefits** (this includes aesthetics, odors, mosquitoes, etc.)
- **Public safety** considerations (e.g. could a solution have some potential concerns for safety, like creating a drowning hazard?)
- Effects on **stream and riparian habitat**
- **Implementation** feasibility (from design and construction standpoint)
- **Land ownership/easements** (potentially affects complexity, cost, timing)
- **Permitting requirements** (Is the project readily permissible? Is expensive environmental mitigation likely?)
- **Construction costs**
- **Operation and maintenance requirements** and costs (post-construction, long-term costs)

Scriber Creek Advisory Committee DRAFT Meeting Summary

May 19, 2014, 5:00 p.m. – 7:00 p.m.
19200 44th Avenue West, Lynnwood, WA 98046
Lynnwood Library

Action Items

	Action Items	Person Responsible
1.	Committee members will fill-in the evaluation criteria matrix and return the completed matrix to Shanese Crosby (scrosby@triangleassociates.com) by June 5th .	Committee members
2.	Add an "Alternatives Considered" section in the Recommendations Memorandum Template.	Triangle
3.	Present Committee members a photo of the half-collapsed culvert just upstream of the study area.	City of Lynnwood

Welcome/Introductions

The purpose of this meeting was to brainstorm and discuss potential flood reduction alternatives.

Attendees

Advisory Committee	Project Team
Josh Brower , Representing Great Floors Owner Ed dos Remedios , Citizen Dave Gilbertson , Parks Board Larry Ingraham , Citizen David Plodwick , Citizen Roz Smith , Casa Del Rey Eric Whitehead , Casa Del Rey	Robert Victor , City of Lynnwood Project Manager Jared Bond , City of Lynnwood Mark Ewbank , Herrera, Consultant Project Manager Mike Giseburt , Leidos Cynthia Carlstad , Triangle Shanese Crosby , Triangle

General Business

There were no comments on the April meeting summary. Committee members can send any suggested comments to Shanese Crosby (Triangle Associates). The March meeting summary is now available online, with addresses removed.

Development of Alternatives

Advisory Committee members brainstormed potential alternatives for the project team to evaluate in Phase 2 of the Scriber Creek Flood Reduction Study.

	Potential <u>Avoidance Strategies</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
1.	Sediment Removal at problem areas (such as Casa Del Rey and others); could include volunteer participation.	<ul style="list-style-type: none"> Educational benefits – this is an opportunity to get community members out in the stream and teach them about the stream. 	<ul style="list-style-type: none"> Sediment removal as part of a holistic plan may be more permissible. Regulators may be 	✓

	Potential <u>Avoidance Strategies</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
			more amenable if removal is done by hand instead of by heavy equipment.	
2.	<p>Use modeling to evaluate flood prone properties at a specified level of service (e.g. 25-year level of service).</p> <ul style="list-style-type: none"> • Model where these properties are both with the existing culverts and if the culverts were replaced • Consider buy outs of flood prone properties • Incorporate distributed detention/storage ponds where possible, such as locating small storage ponds on the properties that may be bought out, or other available properties such as the school district open area (also described as a separate measure below). 	<ul style="list-style-type: none"> • Environmental benefits – potentially more open space. 	<ul style="list-style-type: none"> • This would help flooding throughout the corridor. • Could use a similar financing framework as a utility project. 	
3.	Flood proofing – elevate structures so they are not damaged by flood waters.			
4.	Zoning Review – Identify undeveloped areas and see where building may occur. Are setbacks adequate?		<ul style="list-style-type: none"> • There is little undeveloped land in the study corridor. 	
5.	Incentives for stormwater retrofits – Incentives for landowners to retrofit to retain stormwater on-site. Could reduce surface water utility rates as an incentive.			

	Potential <u>Structural Strategies</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
1.	Raising Roads – raise road at 188 th and possibly excavate upland areas around the wetland to create more storage. Do not upsize the culvert, thus creating a sort of taller dam to impound more water in the upstream wetland.	<ul style="list-style-type: none"> • Partnership Opportunities – potential to partner with Parks Department 		
2.	Raising Roads – raise portions of old 196 th and driveway access of Park View Plaza and Great Floors.	<ul style="list-style-type: none"> • Partnership Opportunities – potential to partner with private businesses and the Parks Department. 	<ul style="list-style-type: none"> • Need to consider upstream impact of this project if culverts are not enlarged. • Would not necessarily have to deal with permits since there would be no in-water work. 	

	Potential <u>Structural Strategies</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
3.	Regional Storage Site at Edmonds School District Property.	<ul style="list-style-type: none"> • Educational benefits – could include educational programs at the site. • Partnership Opportunities – potential to partner with the Parks Department. 	<ul style="list-style-type: none"> • Would likely provide relief to Casa Del Rey. • Because of the buffer zone requirements, there is little the School District can do with the land. • Could additionally excavate the site for more storage and keep the setback the same. 	
4.	Regional Storage Site at empty lot south of 188 th on 55 th Ave.		<ul style="list-style-type: none"> • There are no wetlands on this property. 	
5.	Increase creek channel size – where possible, potentially near 188 th .		<ul style="list-style-type: none"> • May not solve the problem, and it will be difficult to get community buy-in as private businesses may have to give up parking spaces under this alternative. 	
6.	Levees/berms at north end of project site – near Eunia Plaza/Flynn’s Carpet	<ul style="list-style-type: none"> • Recreation benefit – levees and berms can have walking/bike trails on top of them. 	<ul style="list-style-type: none"> • Could be a cost-effective, short-term solution. 	
7.	Earthen Levees or HESCO barriers – spot solutions.		<ul style="list-style-type: none"> • Cheap to deploy. • Not aesthetically pleasing. • Will not contribute to an increase in sediment deposition. 	
8.	Diversion pipes or channels. To convey high flows so existing creek channel does not overtop its banks.		<ul style="list-style-type: none"> • Common technique, but may be difficult to implement in this corridor. 	
9.	Culvert Realignment – realign culvert beneath Casa Del Rey access roadway.	<ul style="list-style-type: none"> • Partnership Opportunities – potential to partner with private residents. 	<ul style="list-style-type: none"> • Have to consider downstream effects. • Could resolve more than one issue. 	
10.	Culvert Replacements – replace culverts under 196 th .		<ul style="list-style-type: none"> • Log fill beneath 196th roadway could pose significant construction 	

	Potential <u>Structural Strategies</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
			challenges and increase costs.	
11.	Scriber Lake Outlet Control – increase storage, re-do inlet control.	<ul style="list-style-type: none"> • Educational benefits – could include educational programs at the site. • Partnership Opportunities – potential to partner with the Parks Department. 		
12.	Sediment Deposition Ponds.			
13.	Channel Stabilization – to control erosion.			

	Potential <u>Watershed-wide Projects</u> to be Evaluated	Potential Co-Benefits	Discussion	Early Action?
1.	Enlarge Scriber Lake by removing hill between Scriber Lake and smaller body of water.		<ul style="list-style-type: none"> • Can add a walking path(s) around the lake; park improvements. 	
2.	Address tributary inflows to the creek. This could be stormwater retrofits to reduce inflows to Scriber Creek.			
3.	Water reuse through stormwater retrofit incentives for businesses. <ul style="list-style-type: none"> • Incentivize businesses to retain their water like PCC in Edmonds. • Tax incentives for stormwater retrofits. 		<ul style="list-style-type: none"> • Likely cannot change the tax structure as a result of this Study. 	
4.	Underground storage vaults – possibly at School District site. <ul style="list-style-type: none"> • Can reduce public safety concerns surrounding above-ground detention facilities. 	<ul style="list-style-type: none"> • Public safety 	<ul style="list-style-type: none"> • This solution is usually only possible if there a large lot available. 	
5.	Stormwater pump stations – could potentially increase storage in Scriber Lake and have a short pump station under 196 th .		<ul style="list-style-type: none"> • Very expensive. • Could have negative downstream effects. 	
6.	Increase storm drain pipe sizes to enable in-pipe flow control when completing future road projects to support corridor flood management.		<ul style="list-style-type: none"> • Complex and time consuming; could take decades to fully implement. 	

Questions & Answers

During the alternatives development brainstorm, Committee members asked the following questions. City answers are in *italics*.

- In general, how long does it take to secure a permit?
 - *It depends on what the permit is for. At a minimum, projects of these types require the City to go through the State Environmental Protection Act (SEPA) process and coordinate with*

- multiple permitting agencies. The State Department of Fish and Wildlife has 30 days to make a decision after the SEPA process is complete.*
- *For smaller maintenance type projects, like the removal of sediment at specific problem areas, a permit could possibly be achieved within a year, but it is not common.*
 - Is the City pursuing grant funding for these projects?
 - *Yes, the City is actively seeking grants.*
 - How much does the City spend on flood recovery when it does flood? Can that funding be reallocated for flood reduction projects?
 - *The details of this budget are not known to the project team at this time. The City has set aside some seed funding for project implementation. Phase 2 of the Scriber Creek Flood Reduction Study will include the identification of outside funding sources.*
 - Are culverts more prone to fill with sediment than open channels?
 - *Not necessarily, it depends on flow velocities and adjacent channel characteristics.*
 - Does the City have a culvert maintenance program?
 - *Yes, but it depends on the regulatory cycle. The City usually receives a permit to complete ongoing maintenance work on a 5-year timeline.*

Next Steps

The final Advisory Committee meeting will be held on June 16, 2014 from 5:00 – 7:00 p.m.

Before the next meeting, Committee members will fill out the “community considerations” criterion for the alternatives brainstormed at the May 19th meeting. Triangle will compile the members’ analysis and add this information to the Recommendations Memorandum for Committee members’ consideration at the June meeting.

Attachment 1 – Flood Reduction Categories Worksheet

This document provides common categories of flood reduction alternatives for the Scriber Creek Flood Reduction Advisory Committee to consider as it brainstorms potential solutions to address long-term flooding in the Scriber Creek corridor. The City of Lynnwood is interested in hearing creative, innovative solutions from Committee members, in addition to the more common types of flood reduction projects.

Avoidance

Avoidance includes projects that help ensure areas at risk of flooding are not developed, unless development can occur without increasing flood risk elsewhere. Examples include:

- Zoning laws / critical area designations / setbacks
- Acquisition of flood-prone property
- **Discussion Question:** What do you see as the most important action the City can take to avoid flooding impacts?

Structural

Structural measures to reduce flooding impacts encompass solutions that are constructed, such as:

- Stormwater storage ponds (Edmonds School District stormwater pond)
- Creek flow storage (such as the North Scriber Creek Detention Facility north of 172nd & west of SR 99)
- Levees and berms
- Diversion channels or pipes (for high flows)
- Culvert replacements (for greater flow capacity)
- Channel enlargement and/or realignment
- Outlet control on Scriber Lake
- Pumping
- **Discussion Question:** What do you want to see the City construct to help alleviate flooding?

Watershed Scale Projects

Watershed scale projects occur at the watershed level, meaning the solutions are not site specific.

Examples include:

- Distributed stormwater storage/detention to reduce storm flows to the creek
- Low impact development stormwater standards to reduce storm flows that leave developed sites, including homes
- **Discussion Question:** What do you want to see the City implement at the watershed level to reduce flooding impacts?

Site Specific Projects

Site specific projects help improve flooding impacts at specific problem areas. Examples include:

- Flood easement acquisitions
- Improved drainage systems (catch basins, ditches and culverts that convey stormwater away from homes, developed properties and roads)
- **Discussion Question:** Based on the problem areas identified by the Advisory Committee over the course of this project, what are potential solutions to alleviate flooding at these specific locations?

Flood Response

Flood response alternatives concentrate on providing support to the community once a flood event takes place. This may include:

- Plan for sand bag distribution and disposal
- Communication protocols between the City and community residents in the event of a flood
- Emergency pumping
- **Discussion Question:** What type of support would you like to see from the City when a flood event occurs?

Multi-use Projects

Multi-use projects can add a layer of complexity to any flood reduction project, as these alternatives often require coordination between multiple entities. However, these types of projects provide community members with benefits beyond flood reduction. Examples include:

- Partnering with the Parks Department to improve open space/recreational areas
- Partnering with the Edmonds School District to provide educational opportunities
- Prioritizing projects that produce the greatest environmental benefits
- **Discussion Questions:** How would you like to see the City partner with the Parks Department and what would you like to see as a result of this partnership? With the Edmonds School District? Others? How can these ideas be incorporated into flood reduction solutions?

Evaluation Criteria Matrix

The Committee brainstormed ideas for flood reduction projects in several categories, including avoidance strategies, structural, and watershed-wide solutions. The matrix below outlines these ideas, along with the criteria suggested by the Committee (for a full list of criteria brainstormed, see next page). Some of the criteria are purely technical in nature and require more information, but others can be more accurately measured or supplemented with information and input from the community. We would like Committee members to rate the flood reduction ideas for the “community considerations” criteria as homework (see “Flood Reduction Alternatives Summary” document” to designate on a scale of 1-5 (5 being the “most positive” – e.g. most benefit) where you see each project measuring up and provide any comments you may have).

Flood Risk Reduction Measure	Community Considerations**	Flood Reduction*	Cost*	Ease of Construction/ Implementation*	Ease of Maintenance*	Habitat Improvements*

**Note: these evaluation criteria are more technical in nature and we do not anticipate that Committee members will provide rankings for these criteria. However, these considerations are important elements in any decision-making process, and we expect to have a conversation about each of these criteria relative to the Committee’s alternatives and discuss any concerns or issues that Committee members may have. The City and technical consultants will act as a sounding board and will provide their expertise as the Committee discusses these criteria.*

***Under community considerations, a higher score means the alternative positively addresses most, if not all, of your considerations outlined under “community considerations” below.*

At the April Advisory Committee meeting, Committee members reviewed and generally agreed on a set of criteria. The evaluation matrix above captures these criteria as follows:

Flood reduction

- Potential to **reduce flooding** in study area
- Effects on **flooding downstream** of Scriber Lake

Community Considerations

- **Aesthetics** impacts/benefits (appearance, odors, mosquitoes, etc.)
- **Public safety** considerations
- **Land ownership**/easements
- **Partnership** opportunities
- Potential to help management of **future development**
- Effects on **property values**

Cost

- Financing/**funding** (who is paying for it – increase for rate payers?)
- **Construction costs**

Habitat improvements

- Effects on **stream and riparian habitat**
- Ability to return corridor to a more **natural flow pattern**
- Use of **native plantings**
- Reduction of **sediment transport**

Ease of construction/implementation

- **Implementation** feasibility (design and construction)
- **Permitting requirements** (Is the project readily permittable)
- **Timing** – how quickly will the project be successful?

Ease of maintenance

- **Operation and maintenance requirements** and costs
- Ease of **maintenance**
- **Permitting requirements** for maintenance work

Scriber Creek Advisory Committee DRAFT Meeting Summary

June 16, 2014, 5:00 p.m. – 7:00 p.m.
19200 44th Avenue West, Lynnwood, WA 98046
Lynnwood Library

Action Items

	Action Items	Person Responsible
1.	Triangle to finalize Recommendations Memo by July 3 rd .	Triangle
2.	Committee members to sign Memo signature page the week of July 7 th . The signature page will be available at the front desk of the Lynnwood Civic Center (19100 44 th Avenue West) from July 7 th to the 15 th .	Committee members
3.	The City will provide monthly email updates to Committee Members on the Study's progress.	City of Lynnwood

Welcome/Introductions

The purpose of this meeting was to confirm prioritization rankings of flood reduction alternatives, finalize content for the Recommendations Memorandum, and determine next steps.

Attendees

Advisory Committee	Project Team
Josh Brower , Representing Great Floors Owner	Robert Victor , City of Lynnwood Project Manager
Miran Che , Eunია Plaza	Jared Bond , City of Lynnwood
Nora Chin , Citizen	Mark Ewbank , Herrera, Consultant Project Manager
Ed dos Remedios , Citizen	Mike Giseburt , Leidos
Dave Gilbertson , Parks Board	Cynthia Carlstad , Triangle
Larry Ingraham , Citizen	Shanese Crosby , Triangle
Chris Nyhus , Park View Business Owner	
Matt Pease , Park View Business Owner	
David Plodwick , Citizen	
Roz Smith , Casa Del Rey	
Eric Whitehead , Casa Del Rey	

General Business

There were no comments on the May meeting summary. Committee members can send any suggested comments to Shanese Crosby (Triangle Associates). The March and April meeting summaries are now available online, with addresses removed.

Review Compilation of Evaluated Alternatives Worksheet

Advisory Committee members reviewed the Compilation of Evaluated Alternatives Worksheet to ensure the alternatives that scored highest were the alternatives the Committee wanted to recommend to the City for further evaluation (see **Appendix B** for completed worksheet). The Committee recommended making the following changes:

- The “culvert realignment beneath Casa Del Rey access road” alternative was expanded to include improvements to the creek channel between Casa Del Rey and 196th to help resolve some of the flow regime and sediment deposition issues that occur within this stretch of the creek.
- “Raising the road at 188th” was moved to the “green” category to help address flooding upstream and in the middle area of the study corridor, paying close attention to impacts on upstream properties.
- “Raising the road at 196th” was moved to the “green” category to address the elevation dip that allows for debris and sediment to collect in the area. Additionally, the Committee added the option of “removing old 196th bridge” which may be more effective than raising the roadways.
- The “sediment removal” alternative was combined with “channel stabilization” and moved to the “green” category in an effort to reduce the source of sediment deposits and establish an ongoing sediment maintenance program.
 - *The City commented that establishing an ongoing sediment removal program is difficult as there are many competing opinions on whether or not the City should take on that liability. Committee members felt strongly this should be a recommendation, and that the responsibilities of the City and private property owners should at least be delineated.*

Questions & Comments

During the review of the Compilation of Evaluated Alternatives Worksheet, Committee members asked the following questions. City answers are in *italics*.

- Will the City and the technical consultant be looking at the most appropriate sequencing for implementing these alternatives?
 - *Yes. During Phase 2, the City will look at the sequencing of the alternatives to determine what makes most sense so that flooding is not worsened anywhere in the creek corridor (including downstream of Scriber Lake).*
- How difficult will it be to get the downstream alternatives approved because of the high cost associated with these projects?
 - *The most expensive project will likely be outlet control at Scriber Lake, followed by building a regional detention pond, and then addressing the drainage issues around the old 196th bridge. It may be a possibility for the Washington State Department of Transportation (WSDOT) to help fund addressing the issues around old 196th as WSDOT has a mandate to make stream culverts they have jurisdiction over more fish passable.*
 - *Part of Phase 2 will be identifying funding sources.*
 - Has the City contacted WSDOT at this time?
 - *Yes, and WSDOT asked the City to again reach out to the Agency once the City is further along in the process.*
- How difficult is the analysis to determine if 188th can be raised efficiently?
 - *It wouldn't be too complicated. Enough engineering needs to be done to figure out how much the project would cost, and roadway design standards would need to be considered.*
- If 188th was raised, how would this increased water storage affect the park? Could it enhance the area or will it be a deterrent?
 - *The area is currently a wetland. 188th overtops during a 10-year storm, so there is some existing storage there already.*
 - As part of this project, invasive species could be removed and a walking path could be added.
- Has the habitat restoration project near Brookmore Estates led to a decrease in sediment entering the creek?

- *The City completed this project in December 2013. There is no requirement or provision for follow-up monitoring related to this site.*
- Are there any opportunities to address tributary inflow?
 - *This gets into incentives, which are difficult to get started. The City is also bound to development cycles, and often times property owners' buildings are grandfathered in.*
- What is the possibility of having the Committee's recommendations trumped by one of the Councilmembers?
 - *Having community support for projects goes a long way.*
 - One Committee member stated that during the presentation to the Council, the Committee can mention that they spent a combined 120 hours looking at this information.
- Are there any other kinds of projects being implemented in surrounding jurisdictions that could potentially be considered in this study that the Committee has not talked about?
 - *The types of projects being considered by similar jurisdictions are accounted for in the alternatives brainstormed by the Committee.*
- Committee members have seen a lot of debris, specifically from the 7/11, in the lower reaches of the creek.
- The Recommendations Memo should highlight a comprehensive suite of alternatives to evaluate to help ensure that the problem is resolved appropriately.

Review Recommendations Memo

The Committee briefly reviewed the contents of the Recommendations Memorandum. The schedule for finalizing the Recommendation Memo is as follows:

Activity	Due Date
Triangle to send out updated Recommendations Memo based on June 16 th meeting feedback to the Committee.	Monday, June 23 rd
Committee member feedback due to Triangle	Monday, June 30 th
Final Recommendations Memo to Committee	Thursday, July 3 rd
Signature Page available at City of Lynnwood Civic Center (19100 44th Ave W)	Monday, July 7 th – Tuesday, July 15 th
Committee Presentation to City Council	September

All Committee members are invited to present the Committee's recommendations to City Council. The City anticipates that the presentation will occur in September. Matt Pease (Park View Plaza) volunteered to help present the Committee's recommendations.

Next Steps

This was the last scheduled Scriber Creek Flood Reduction Advisory Committee meeting. The City anticipates re-convening the Committee during Phase 2 of the Flood Reduction Study and potentially holding a public meeting. The Committee recommended the following next steps:

- A minimum of monthly email updates from the City on the Study's progress (more when appropriate).
- Evaluation of the process.