Summary of Last Meeting:
The focus of the March 14th Smuggler’s Gulch Citizen Advisory Committee meeting was to create an issues map which posed questions and concerns of the Committee members with regard to drainage issues in the Smuggler’s Gulch basin. The purpose of this exercise was to identify both LID project level concerns and understand the broader basin-wide concerns of those living in the basin. Attached to this report is a list of those comments by sub-basin with some staff responses provided.

The Issues Map was developed by our CAC group at our kickoff meeting. From the Issues Map, the ideas, questions and concerns are divided into two categories: those that relate directly to the LID project and those that fall into the broader basin wide issue which will provide for the foundation of the Smuggler’s Gulch Basin Development Strategy Plan. Below in the table is the first draft at sorting the suggestions, questions and concerns heard at the March 14 meeting; a full copy of the matrix with staff responses will be handed out at the end of the next meeting. These are categorized for further evaluation:

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Update the Smuggler’s Gulch Basin Map</td>
<td><strong>Sub-Basin 2: Upper-Region</strong></td>
</tr>
<tr>
<td>Provide more information on LID &amp; their benefits: slope stability vs. collection vs. treatment vs. infiltration</td>
<td>Prepare a strategy plan for neighbors to address wet yards and underground seeps</td>
</tr>
<tr>
<td>Provide designs for “Rain gardens” and Gravel Galleries</td>
<td>Do a field study in the winter of 2013/2014 to see what (if any) flooding is occurring near 88th and 89 Place W.</td>
</tr>
<tr>
<td>Make the LID facilities look natural</td>
<td><strong>Sub-Basin 3: Mid-Region</strong></td>
</tr>
<tr>
<td></td>
<td>Prepare an evaluation of the wetland and stream to better understand the flows from the 50th Place pond to 53rd Avenue.</td>
</tr>
<tr>
<td></td>
<td>Work with the neighborhood to prepare a restoration Plan for the wetland and creek which can be implemented over time by the community with the consent of the property owners.</td>
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</tbody>
</table>
Prepare a list of flow control and bank stabilization “best management practices” (BMP’s) that can be used on private property by land owners to help protect their properties.

Request that monitoring stations be installed at the top and bottom of the gulch.

Conduct turbidity sampling

**Purpose of April 11 Meeting:**
The purpose of the April 11 meeting will be to focus on identifying potential types of LID facilities that can help address the drainage concerns within the upper and mid regions of the basin. By choosing projects in these two areas, the intent is to reduce the peak flowrates from stormwater runoff before it reaches the lower region. That can be accomplished using several LID methods: This includes for detention rain gardens, bioretention facilities, and gravel galleries. For stormwater quality treatment, this includes other types of LID facilities, and these alternatives will be presented near the beginning of our next meeting. We will be soliciting your input in looking at a variety of options that can fit into the neighborhoods. The caveat to this is that the facilities need to be able to be constructed within the City right-of-way or within an existing drainage easement; because there is not enough money within the project to purchase land, and it does not fit within the scope of the grant as the projects are required to be a “retrofit” of existing on-site conditions.

We will present a map at the meeting showing “bubble” areas with LID options for the Committee to consider. At the conclusion of the meeting, our goal is to have a list of projects that can be presented at the 3rd open house on April 25th.

The next section of the report summarizes the total project budget, including those projects that the Council previously approved to move forward. After deleting the cost estimates for those projects, it appears that there is between $262,000 and $368,000 for additional LID projects that leaves between two and three additional projects to site in the upper regions of the basin. However, if the Committee recommends additional projects, we can add those to the Basin Strategy Plan and/or request additional funding for construction.
**Project Budget:**
Using the grant contract, consultant contract, and cost estimates of the approved projects a preliminary budget has been prepared showing the distribution of funds.

| Original Grant Budget: 1,333,333.00 |
|-----------------|------------------|
| **Allocated as follows (See Grant Contract):** | **Project Administration (Staff Time):** $40,000 |
| | **Design:** $295,000 |
| | **Construction Management:** $133,333 |
| | **Construction:** $862,000 |
| | **Public Meetings:** $3000 |
| **Sub-Total:** | **$1,333,333** |
| **Added Costs:** | **Citizen Advisory Committee Staffing & Technical Support:** $57,222 |
| | **Total Budget:** $1,390,555 |

**Predicted Expenditures:**

<table>
<thead>
<tr>
<th>Original Budget: Approved Projects Costs Estimates: (Actual costs will not be known until bidding)</th>
<th>44th Avenue “Bioretention Facility” $170,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>88th Street Detention Facility $130,000</td>
<td>50th Place Detention Facility $150,000</td>
</tr>
<tr>
<td>Whisper(ing)wood Detention Facility $150,000</td>
<td><strong>Subtotal:</strong> $600,000</td>
</tr>
</tbody>
</table>

**Remaining Construction Budget for LID Options:** (862,000 – 600,000) $262,000

**Alternative Option:**

<table>
<thead>
<tr>
<th>Alternative Construction Budget for LID Options:</th>
<th>New Remaining Construction Budget for LID Options: $368,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add: staff reimbursement line item:</td>
<td>Add: reduce construction management estimate by half</td>
</tr>
<tr>
<td>$40,000</td>
<td>$66,000</td>
</tr>
</tbody>
</table>

Total Remaining Construction Budget for LID Options: $368,000
Smuggler's Gulch Citizens Advisory Committee
April 11, 2013 Proposed Agenda
6 PM to 8 PM
City Council Chambers

Welcome (5 min.)

Summary of Last Meeting (20 min.)
   a. What we achieved at last meeting
   b. Map Conversation to Matrix
   c. Review Responses to Questions & Map

Discussion of LID Options & Monitoring (10 min.)
   a. LID Options Overview
   b. LID Options Pro & Con Discussion
   c. Monitoring

Develop LID Location Map (1 hr, 10 min.)
   a. Review “Bubble” Map with proposed LID project locations
   b. Committee Discussion on proposed LID options & locations
   c. Sort LID options into grant project & possible future projects

Comments by Members of the Audience (If Any) (10 min.)
   a. Comments by the public – 3 minutes/person

Meeting Closing (5 min.)
   a. Outcome Focused → How did we Do?
ATTENDANCE
Committee Members:
George Bowden  Sylvia Kawabata
David Davenport  Mary Bess Johnson
Tim Ellis  Christine Schmalz (arrived at 7:30)
Andy Higgins  Bruce Simpson
Eric Hovland
Gary Bland was absent

City Staff:
Patricia Love, Assistant Director, Community Development
Jim Niggemeyer, Assistant City Engineer
Shawna Gossett, Permit Services

Consultants:
Dean Franz, Tetra Tech
Scott Williams, Facilitator, Tetra Tech

MEETING NOTES
Patricia Love made introductions and provided a definition of Low Impact Development.

Scott Williams, Tetra Tech reviewed the team guidelines, the purpose of and success factors for the committee. Discussion followed.

Eric Hovland stated he has read a lot about low impact development and he feels the main goal is to mimic nature’s process by allowing rain water to re-infiltrate the ground and he doesn’t feel the City’s projects are accomplishing this goal.

Tim Ellis asked why it is called a “demonstration” project.

Response: Patricia Love explained that Smuggler’s Gulch Basin was the area that needed the most storm drainage management improvements so we wanted to use it as a test to see if a good result occurs. If so we could use it as a model and apply it throughout the City. Smuggler’s Gulch was our starting point.

Bruce Simpson asked for a clarification of the concerns within the gulch. He doesn’t see any flooding on the upper end. He had heard of some houses where basements were flooded.

Response: The city staff shared their knowledge of major erosion and sediment deposition in the lower reaches of the gulch and sediment going out into Puget Sound. Sylvia Kawabata responded that during heavy rain events the flows are very heavy once they get to the bottom of the gulch. Discussion followed by the committee about where and how water flows down the gulch.

Patricia Love brought the basin map to the attention of the Committee and how it shows the network of pipes and culverts and open creek of the storm drainage system and showed the general path of storm drainage.
David Davenport asked if there are any measurements of the overflow volume we experience during a rain event and how this project will help reduce the volume.

Response: Jim Niggemyer responded that in general the measurement of the volume is not important; the important thing is that we have too high a flowrates which cause erosion. So if we can make improvements to reduce stormwater peak flowrates in the mid- to upper-portion of the basin, it will reduce the peak flowrates in the lower reaches of the basin as well.

Eric Hovland requested documentation of the existing problems and measurements of existing volume of the flowrates and water levels as recommended by the 2010 Pre-Design report before the projects that are already approved are constructed along with the other recommendations from the report.

Sylvia Kawabata stated another issue in the basin is the failure of the road on 61st Place where the failing soldier pile wall is located and off of 89th Place off of 44th were flooding occurs.

Mary Bess Johnson asked that along with the identifying flowrates she would like to know the volumes. She feels the solution is to direct water to its appropriate channel, distribute and direct it, or spread it out to be managed appropriately.

Scott Williams spoke of the team purpose and operating guidelines; balance and respect each other’s opinion, allow him to facilitate, listen well, be open to ideas, be open to a learning experience, stay on topic, take ownership of the meeting agenda, start on time and end on time, be outcome focused, and focus on at what we are trying to accomplish.

David Davenport identified a problem below his house that has an access issue.

Jim Niggemyer stated the City is aware of this problem and it is within the basin but is a sub basin as the drainage from the area does not enter Smugglers Gulch Creek and is a separate outfall. This project is identified as Naketa Outfall and is in the budget and we hope to get it completed this year.

Dean Franz, Tetra Tech gave a presentation on Best Practices and showed examples of different storm detention/retention options using Low Impact Development (LID) methods.

Andy Higgins provided some background on the history of the State’s requirements for Cities to get a storm water permits (NPDES) and cities are required to implement low impact facilities as part of that permit. This drives the need to consider this type of project. Underlying that is the fact that all of our storm drainage discharges into the Sound. This problem starts with every little area that does not infiltrate into the ground and eventually ends up in the Sound.

Committee discussion followed. Issues and concerns throughout the basin were identified and mapped. See attached project/issues list.

**CITIZEN COMMENTS**

The following comments were made by the audience.

Intersection of 88th and 44th, there is a detention pond on the east side that is not well maintained. Can we add pressure to get the County to better maintain the pond? To the east of that intersection and somewhat south there is a lot of flooding that occurs on the road.

Flooding in the upper part of the Gulch, in the December of 1996, there was a significant mud flow just south of the 88th and Speedway pond (“Mukilteo Estates Pond”).
There appears to be a lot of iron oxide algae in the storm drainage system and it turns into a gel and clogs drains.

There was a request to remove the fences on the detention ponds to make them more visibly aesthetic.

Two detention ponds, one in Whisper Wood site and one at the 88th and 46th Place W. gets loaded with blackberries. There was a request for better maintenance of the ponds.

These items were added to the issues list.

It was requested to have some form of online collaboration with a map of the issues so the Committee could click on the map and the link would lead to a web page that provides the status.

Scott Williams asked the committee what we could do better at the next meeting to utilize our time well. Following are the comments from the Committee:
- Post the agenda during the meeting and add the times to the agenda so we can keep on schedule.
- Focus on the deliverables for the meeting and post them so we can be sure we achieve our objectives by the end of the meeting.
- Asked staff to provide the City’s documentation of the existing issues and have the Committee provide any documentation they have of known issues.

A member of the audience said that he heard that the Whisper Woods detention pond was too shallow to be included in this project.

Response: Patricia Love said it may be and the City will be working with Ecology on alternatives for this pond. The LID projects must have enough benefit from the changes to qualify for the grant. So it will remain on the issues list for the basin even if it isn’t covered under the grant.

Scott Williams asked the Committee what we did well during the meeting. The Committee provided the following comments:
- Good job keeping the meeting going.
- Good job in assigning responsibility.
- Andy Higgins’ explanation was very helpful.

Eric Hovland asked one final question regarding if any of the proposed sites will be infiltration sites. This should be answered at the next meeting.

These notes are excerpts from the Citizen Advisory Committee for the Smuggler’s Gulch LID Project. An audio recording of the meeting was made.

Prepared by:

Shawna Gossett, Permit Services Supervisor
Comments about the Pre-Design Report:

1. This “Pre-Design Study” is a planning and engineering document that looked at 3 major retrofit alternatives. Of the 3, the Pre-Design study recommend an approach to move forward with general LID layout refinements, and then on into design, to be done in the next major phases of work. Because this is a planning study looking at alternatives, many final planning decisions and design decisions were left to be made after the publication of the Pre-Design study.

2. A statement has been made that the Pre-Design study excludes the idea of having an LID facility (such as a rain garden) on 44th Ave. This statement is in error. The location where the quote came from is on page 23; and this has been taken out of context. There was no intent in the Pre-Design Study to imply that rain gardens or gravel galleries are of little use along 44th Ave. Certainly LID facilities appropriately sized along 44th Ave are acceptable. And to emphasize--a few potential site along 44th Ave were specifically shown in the Pre-Design study in Figures 3.1B and 3.1C.

3. The feasibility of infiltration was not resolved in the Pre-Design study, and no specific infiltration recommendation was given. In the Conclusions and Recommendations it made clear that the LID facilities can function well without infiltration. The complex and varied subsurface soil conditions, along with fact that LID sites were not finalized with the Pre-Design study, necessitated the infiltration potential alternative be considered at a later date through the geotechnical engineering process.

4. In the study it was stated that reduced peak flowrates resulting from the installation of new LID facilities and pond retrofits can be determined by hydrologic modeling. We continue to recommend this analysis approach using methods recognized by the State and the Washington Dept. of Ecology for projects located in Western Washington.

5. In the study it was stated that flowrates can be monitored from the urbanized areas from Smuggler’s Gulch. However, we have backed away from this recommendation after consultation with Ecology. The main reason for this is flowrates change from year-to-year and season-to-season, just as rainfall patterns fluctuate. Therefore collecting and evaluating flowrate data from just a few years is not a sufficient span of time to draw up useful conclusions.
Responses to Email Questions:

1. A drainage inventory map for the smuggler's gulch basin that includes the potential LID locations of the rain gardens and gravel galleries. I have both maps but there are not combined into one and my inventory map is in such a small scale it is hard to read the directions of the flow paths. And I have to keep switching between the drainage inventory maps to look at the potential LID projects.

   This is a good idea. We will prepare a composite map showing both and have it at the next CAC meeting for use by the committee members.

2. Any info your consultants have collected to recommend the potential LID locations (e.g. road topography - which was the road is sloping), size of area, etc.

   We will provide supporting information of the potential LID Locations which will include for each site: representative photograph(s), direction of terrain adjacent to the roadway ,the slope of the roadway, and general characterization of the site constraints.

3. Any info you have about the performance of the existing stormwater vaults (49th Ave West, Surrey Lane (Horseshoe Ridge development)

   We have no data on this performance. The new NPDES Permit will require us to inspect these facilities starting in 2015. This inspection will address condition and maintenance.

4. Other LID options from the 2012 LID manual (e.g. vegetated swales)

   We will provide a listing and examples of LID options. We will show photographs are typical details of each.

5. The cost difference in capital and O&M for a stormwater vault versus a gravel gallery . Does performance peak out based on size of catchment area of gravel gallery surface catchment area? In other words, will performance still be good regardless of size of the gravel gallery size surface area?.

   The purpose of a vault and gravel gallery is to reduce peak flowrates of storm runoff that discharges into that facility. As a reminder, the mechanism to reduce peak flowrates is by providing a volume for detention (temporary storage and then release) of stormwater. Therefore, the greater the volume, the better the performance. Naturally there is a maximum volume that is practical, both in terms of space available for constructing the detention facility and in terms of optimization for the area that discharges runoff to it. The optimization for sizing a detention facility is one of the main benefits of performing hydrologic modeling. We use engineering software recognized and approved by the Washington State Dept. of Ecology. With the statement of these principles we follow in sizing a detention facility, now to answer the question simply. The possible sites for stormwater detention vaults and gravel galleries in the Smuggler’s Gulch basin, the limiting size factor is, in most cases, the land availability. We are constrained to limiting the size to within the existing road right-of-way, with minimal impacts to existing landscaping, and to avoid (if possible), impacts to other underground utilities, such as water and sewer pipes, within the roadway.

   There are 3 commonly used underground detention facilities constructed within road rights-of-way. In order of cost to construct—ranking from ‘most expensive’ to ‘least expensive’, these are: a) concrete vaults; b) large diameter pipes, also referred to as ‘tanks’; and c) gravel galleries.

   In terms of O&M, the on-going maintenance costs of all three are about the same to maintain. The major exception to consider when comparing two options is if one facility will be located within a busy roadway, then this results in more costly temporary traffic controls and safety measures to perform the O&M. Similarly, any detention facility that is difficult to access or requires special arrangements for crews to access that facility, then that equates to higher O&M costs. In summary, the function of O&M costs is primarily based upon site constraints and accessibility needs.
6. What is the longevity of a gravel gallery surface (expected life expectancy before it has to be resurfaced). Also can the surface withstand the weight of heavy size vehicles (dump trucks, fire trucks, etc) and the speed or daily traffic of vehicles? Can the Mukilteo Speedway be a gravel gallery?

Gravel galleries are constructed of sufficient depth beneath the roadway structural pavement section so as to not inhibit the performance for life of the pavement. The structural pavement section consists of the paved surface (asphalt or concrete), and the gravel base materials beneath the pavement. And yes, as was mentioned, truck traffic causes the greatest amount of load on a pavement. Any gravel materials do a good job of transferring and distributing those loads, including gravel gallery materials. The design element to address is to have the water stored in the gravel gallery of sufficient depth beneath the pavement so as to not diminish the strength of the structural pavement section.

In summary, the functional life of a pavement is not changed, (improved or diminished), by constructing a gravel gallery beneath it.

7. Is there any rules/restriction for the residents who live next to a gravel gallery? Can they still wash their cars with detergents? Any restriction on residences when they work in their lawns or yard - erosion when putting in new landscaping (erosion control of silt/dirt from entering the street), using water to "sweep" their street of lawn clippings, etc.

Current DOE regulations discourage washing cars or otherwise discharging water with contaminants on an impervious surface that drains directly into the stormwater or surface water system. It is recommended that people use car washes that treat their discharge or wash their cars on a lawn that provides a degree of treatment. This policy does not change as a result of the construction of a gravel gallery. In other words, the presence of a nearby gravel gallery is of no consequence to policy by the state on the issue of car washing. The debris entering the storm catch basins and storm pipe system, such as leaves, grass clippings, sands and gravels, etc., is captured in two ways, before entering a gravel gallery. First, there are sumps built into catch basin which capture course sands and gravels and heavy debris. Second, there will be a hydrodynamic separation manhole that captures both floatables (grass clippings, etc.) and sediments materials, such as sands and silts. This manhole has the debris pumped out of it periodically by a vectr truck.

8. Similar to question #7 - any rules/restriction for the residents who live next to a rain garden? No putting lawn clippings/fall leaves in rain garden? no trash, no playing in rain garden?.

Placing any debris in the rain garden will be prohibited. Playing will hamper the function of the rain garden and is also a safety issue and will be restricted. This is because the topsoil in a rain garden needs to remain loose and not compacted down, which would inhibit it from allowing rain water to infiltrate through the topsoil.