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Appendix E

# Preliminary Alternative Screening Results

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King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) - 11th Ave NW

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
1	DSN004-STOR-1 (KC)	RWSP Alternative. Storage tank to control 11th Ave NW CSOs only, located underneath NW 45th Street. It may be possible to combine GSI with this alternative to control CSOs.	H	M	M	H	M	L	M	M	M	M	M	H	M	M	M	M	<p><u>General Assumptions:</u> High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required (High rating), but the project increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project controls one CSO site and increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tank may require ROW access (Low rating).</p>
2	DSN004-STOR-2 (KC)	RWSP Alternative. Storage tank to control 11th Ave NW CSOs only, located on private property. It may be possible to combine GSI with this alternative to control CSOs.	H	M	M	H	M	L	M	M	M	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN004-STOR-1 (KC) described above.</p>
3	DSN004-CON-1 (KC)	Increase conveyance to Ballard Siphon and construct smaller storage tank than that required in Alternative DSN004-STOR-1 (KC) and DSN004-STOR-2 (KC). It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	H	M	L	M	L	M	H	H	H	H	M	M	M	<p><u>General Assumptions:</u> Potential site is located in ROW. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Sustainability:</u> Because this alternative includes a smaller storage tank, assume smaller carbon footprint than other storage alternatives.</p> <p><u>Permitting Complexity:</u> Construction of conveyance pipe likely requires shoreline permit (within 200 ft of shoreline) with City of Seattle Director's approval.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN004-STOR-1 (KC) described above.</p>
3A	DSN004-CON-2 (KC)	Increase conveyance to Ballard Siphon. GSI would eliminate the need for storage.	M	L	M	H	H	L	H	L	H	H	H	H	H	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN004-STOR-1 (KC) above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN004-CON-1 (KC) described above.</p>

King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) - 11th Ave NW

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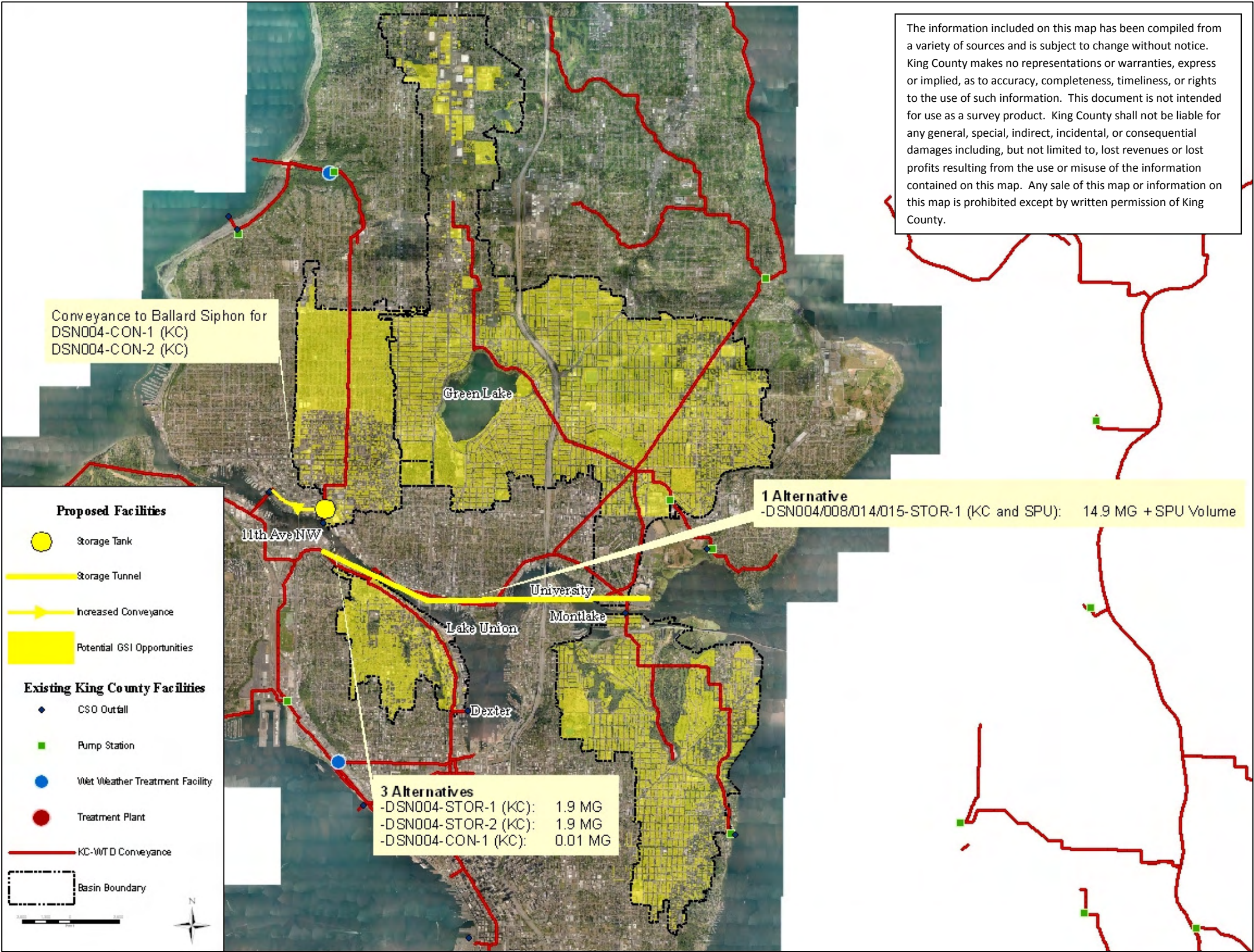
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
35	DSN004/008/014/015-STOR-1 (KC & SPU)	Joint King County/SPU storage and conveyance tunnel from University Regulator to 3rd Ave W Regulator. It may be possible to combine GSI with this alternative to control CSOs.	L	L	L	L	H	L	M	H	H	M	H	H	M	M	H	M	<p><u>General Assumptions:</u> The purpose of the tunnel is for storage only. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN004-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because critical or sensitive areas are likely impacted, and tunnel is located within 200 ft from shoreline (Low rating). However, the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating).</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN004-STOR-1 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) - 11th Ave NW

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King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – 3<sup>rd</sup> Ave W

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
4	DSN008-STOR-1 (KC)	RWSP Alternative. Storage tank to control 3rd Ave W CSOs only, located underneath extension of W Ewing St. It may be possible to combine GSI with this alternative to control CSOs.	H	L	M	H	M	L	M	L	M	M	M	H	M	L	M	M	<p><u>General Assumptions:</u> Low potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Potential storage tank is located within 200 ft of shoreline and likely requires City of Seattle Council approval.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project controls one CSO site and increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tank may require ROW access (Low rating).</p>
5	DSN008-STOR-2 (KC & SPU)	Distributed/Joint storage upstream of the Fremont Siphon for King County 3rd Ave W and SPU CSO Basins 147 and 174. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	H	L	M	M	H	M	M	H	M	H	M	H	<p><u>General Assumptions:</u> Potential site is located on private property. Low potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN008-STOR-1 (KC) described above.</p>
7	DSN008-STOR-4 (KC & SPU)	SPU constructs storage upstream of the Fremont Siphon. New storage reduces storage requirements for King County at 3rd Ave W. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	M	L	M	L	M	M	M	H	M	L	M	M	<p><u>General Assumptions:</u> Potential site is located in ROW. Low potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN008-STOR-1 (KC) described above.</p>
7A	DSN008-STOR-5 (KC & SPU)	SPU conveys flows in new siphon to 3rd Ave W and joint King County/SPU storage on south side of Ship Canal. It may be possible to combine GSI with this alternative to control CSOs.	L	L	M	M	M	L	M	L	M	M	M	H	M	L	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN008-STOR-4 (KC &amp; SPU) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN008-STOR-1 (KC) described above.</p>

King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – 3<sup>rd</sup> Ave W

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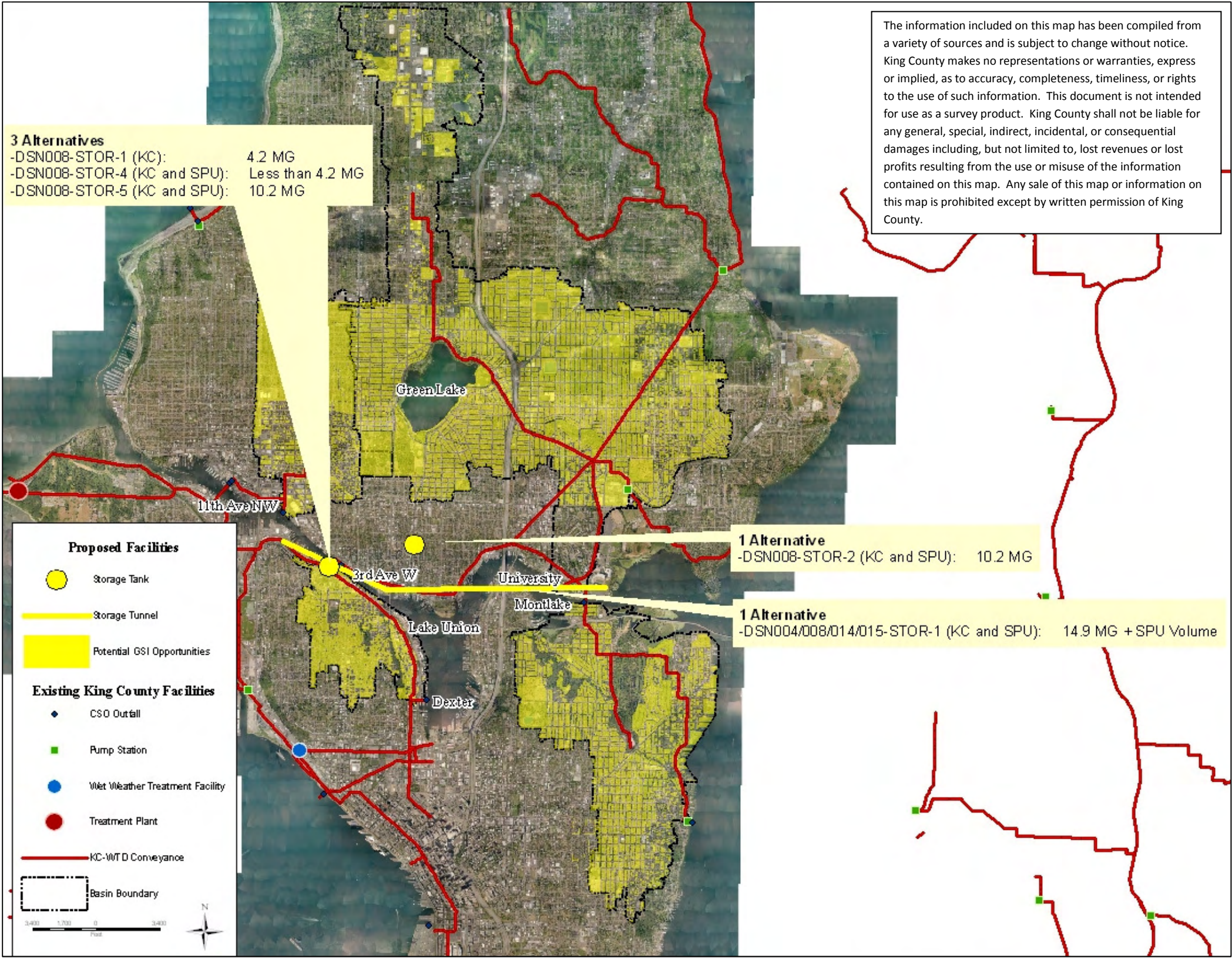
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
35	DSN004/008/014/015-STOR-1 (KC & SPU)	Joint King County/SPU storage and conveyance tunnel from University Regulator to 3rd Ave W Regulator. It may be possible to combine GSI with this alternative to control CSOs.	L	L	L	L	H	L	M	H	H	M	H	H	M	M	H	M	<p><u>General Assumptions:</u> The purpose of the tunnel is for storage only. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN008-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because critical or sensitive areas are likely impacted, and tunnel is likely located within 200 ft from shoreline (Low rating). However, the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tunnel may require ROW access (Low rating).</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – 3<sup>rd</sup> Ave W

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King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Montlake

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Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
10	DSN014-STOR-1 (KC)	Storage tank to control Montlake CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	H	M	M	M	L	L	L	L	M	M	M	H	M	H	M	M	<p><u>General Assumptions:</u> Potential site is located in ROW. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Public concern regarding project is anticipated.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project controls one CSO site and increases the number of potential King County CSO control facilities required (Low rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tank may require ROW access (Low rating).</p>
11	DSN014-STOR-2 (KC & SPU)	Transfer SPU Leschi, Madison Park, Montlake CSO storage needs to joint facility for King County Montlake CSOs, located on south side of Ship Canal. It may be possible to combine GSI with this alternative to control CSOs.	M	M	M	M	L	L	L	L	M	M	M	H	M	H	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN014-STOR-1 (KC) described above.</p>
35	DSN004/008/014/015-STOR-1 (KC & SPU)	Joint King County/SPU storage and conveyance tunnel from University Regulator to 3rd Ave W Regulator. It may be possible to combine GSI with this alternative to control CSOs.	L	L	L	L	H	L	M	H	H	M	H	H	M	M	H	M	<p><u>General Assumptions:</u> The purpose of the tunnel is for storage only. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because critical or sensitive areas are likely impacted, and tunnel is likely located within 200 ft from shoreline (Low rating). However, the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating).</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN014-STOR-1 (KC) described above.</p>
36	DSN014/015-STOR-1 (KC)	RWSP Alternative. Convey Montlake flows to University/Montlake storage tank located on north side of Ship Canal, located in one site in the UW area that was identified in the RWSP. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> A single storage tank would be required. Potential site would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Construction of conveyance pipe likely requires shoreline permit (within 200 ft of shoreline) with City of Seattle Director's approval.</p>

King County 2012 Combined Sewer Overflow Control Program Review

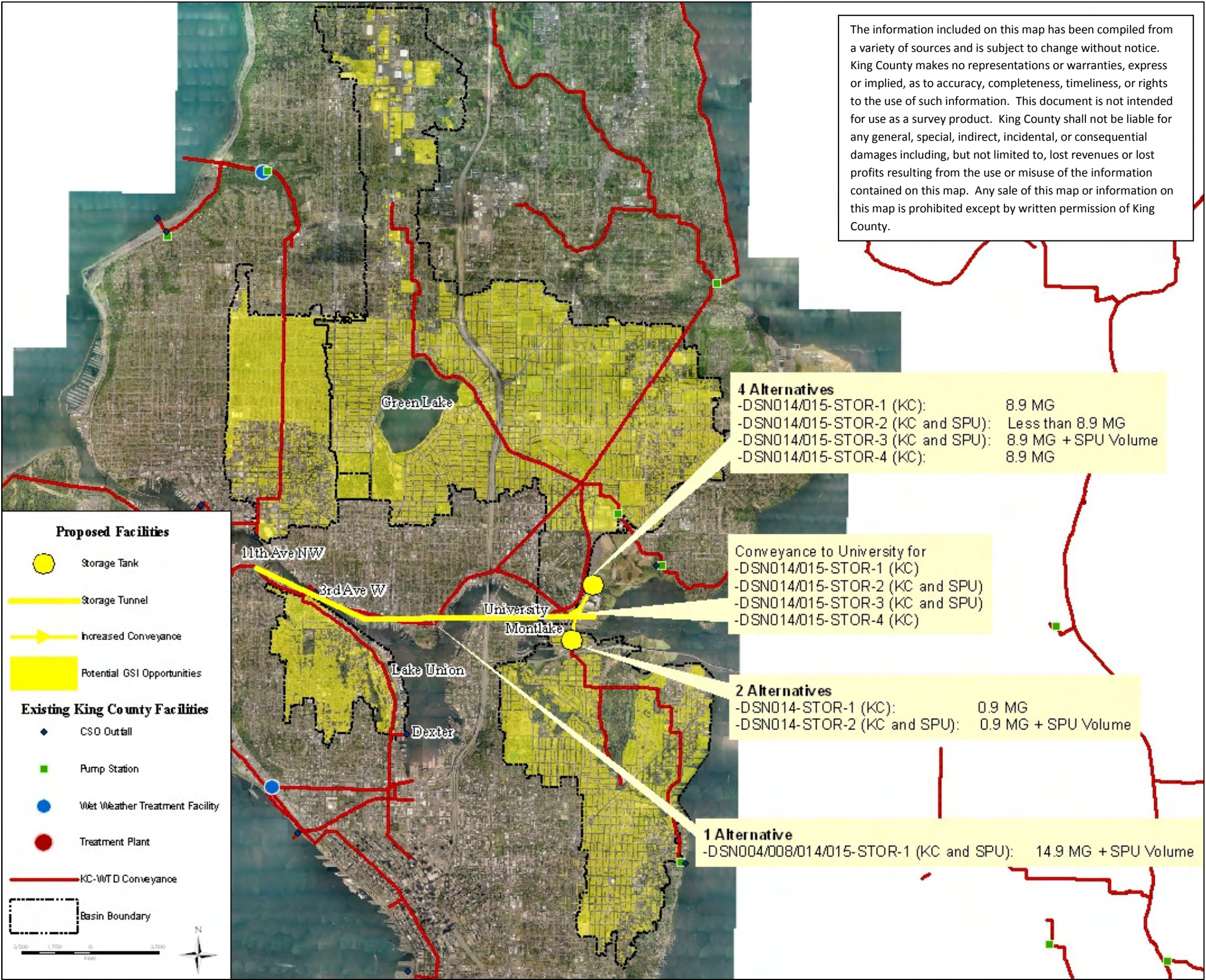
Screening of Preliminary Alternatives (H, M, L) – Montlake

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
36A	DSN014/015-STOR-4 (KC)	RWSP Alternative. Convey Montlake flows to University/Montlake storage tank located on north side of Ship Canal, located in a combination of multiple sites in the UW area that were identified in the RWSP. It may be possible to combine GSI with this alternative to control CSOs.	L	L	M	L	L	L	M	L	L	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Distributed storage would be required. Potential sites would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> High public concern regarding project is anticipated.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p>
37	DSN014/015-STOR-2 (KC & SPU)	Storage tank to control University and Montlake CSOs, but the storage size would be reduced by SPU's CSO control projects. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN014/015-STOR-1 (KC) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p>
38	DSN014/015-STOR-3 (KC & SPU)	Joint King County/SPU storage tank to control King County University and Montlake CSOs and SPU CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN014/015-STOR-1 (KC) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN014-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p>



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King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – University

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Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
12	DSN015-STOR-1 (KC)	Storage tank to control University CSOs only, located in one site in the UW area (potential sites were identified in the RWSP). It may be possible to combine GSI with this alternative to control CSOs.	H	L	M	M	L	L	L	M	M	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Potential site would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Public concern regarding project is anticipated.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required (High rating), but the project increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p>
12A	DSN015-STOR-5 (KC)	Storage tank to control University CSOs only, located in multiple sites in the UW area (potential sites were identified in the RWSP). It may be possible to combine GSI with this alternative to control CSOs.	L	L	M	L	L	L	L	L	L	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Distributed storage would be required. Potential sites would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> High public concern regarding project is anticipated.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN015-STOR-1 (KC) described above.</p>
13	DSN015-STOR-2 (KC)	Storage tank to control University CSOs only, located in Ravenna Park (near intersection of Laurel Hurst and Greenlake King County trunks). Storage tank may offload enough flows in North Interceptor to allow capacity for additional flows from Montlake. It may be possible to combine GSI with this alternative to control CSOs.	L	M	M	M	L	L	L	L	M	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Potential site would be located in Ravenna Park. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required and storage tank will likely not impact stream in Ravenna Park (High rating), but the project increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN015-STOR-1 (KC) described above.</p>

King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – University

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Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
14	DSN015-STOR-3 (KC & SPU)	Storage tank to control University CSOs only, but the storage size would be reduced by SPU's CSO control projects. It may be possible to combine GSI with this alternative to control CSOs.	H	L	M	M	L	L	L	M	M	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> A single storage tank would be required. Potential site would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN015-STOR-1 (KC) described above.</p>
15	DSN015-STOR-4 (KC & SPU)	Joint King County/SPU storage tank to control King County University CSOs and SPU CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	L	M	M	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN015-STOR-3 (KC &amp; SPU) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN015-STOR-1 (KC) described above.</p>
35	DSN004/008/014/015-STOR-1 (KC & SPU)	Joint King County/SPU storage and conveyance tunnel from University Regulator to 3rd Ave W Regulator. It may be possible to combine GSI with this alternative to control CSOs.	L	L	L	L	H	L	M	H	H	M	H	H	M	M	H	M	<p><u>General Assumptions:</u> The purpose of the tunnel is for storage only. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because critical or sensitive areas are likely impacted, and tunnel is likely located within 200 ft from shoreline (Low rating). However, the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tunnel may require ROW access (Low rating).</p>
36	DSN014/015-STOR-1 (KC)	RWSP Alternative. Convey Montlake flows to University/Montlake storage tank located on north side of Ship Canal, located in one site in the UW area (potential sites were identified in the RWSP). It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN015-STOR-3 (KC &amp; SPU) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Construction of conveyance pipe likely requires shoreline permit (within 200 ft of shoreline) with City of Seattle Director's approval, and the project reduces the number of potential King County CSO control facilities and permits required.</p>

King County 2012 Combined Sewer Overflow Control Program Review

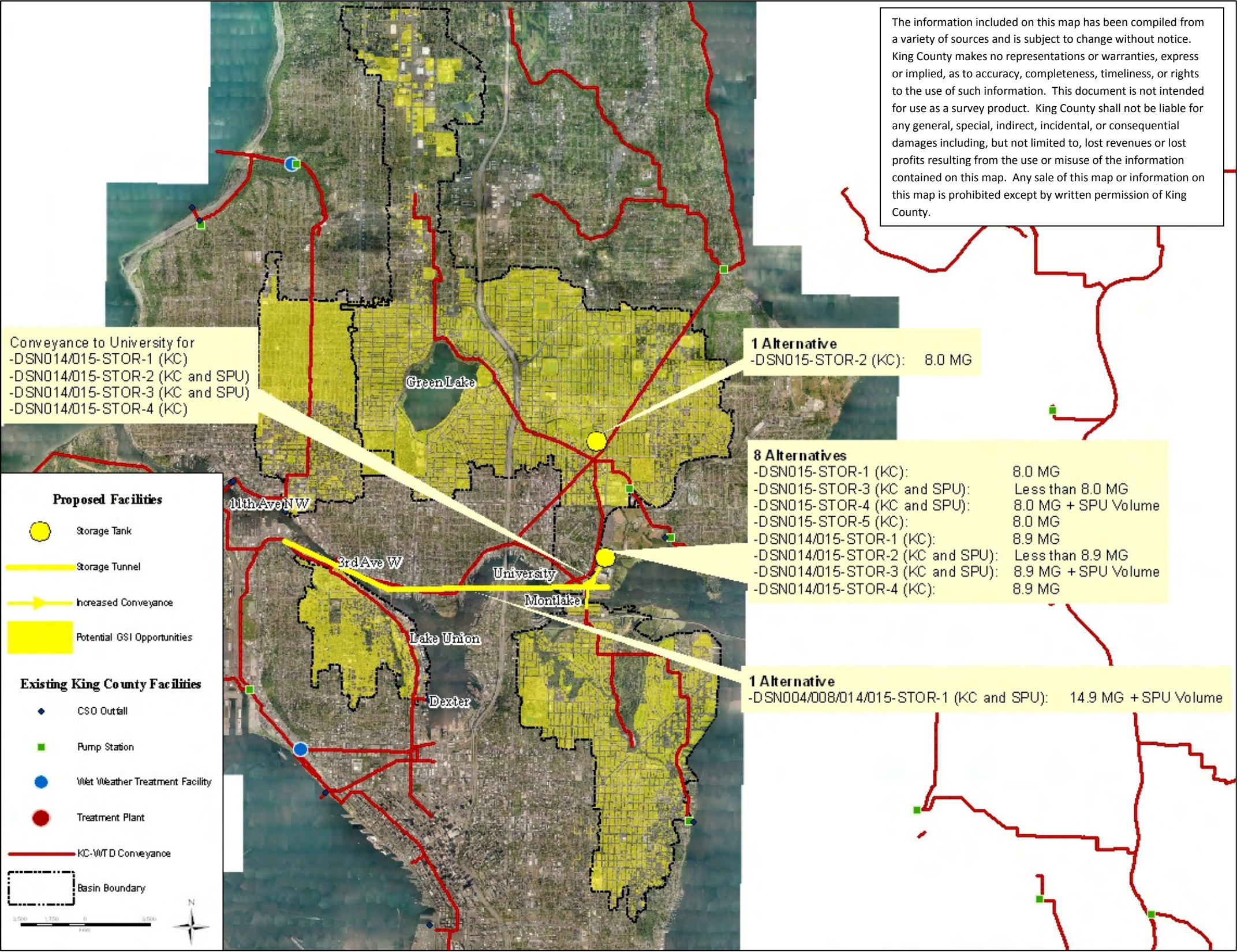
Screening of Preliminary Alternatives (H, M, L) – University

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
36A	DSN014/015-STOR-4 (KC)	RWSP Alternative. Convey Montlake flows to University/Montlake storage tank located on north side of Ship Canal, located in a combination of multiple sites in the UW area that were identified in the RWSP. It may be possible to combine GSI with this alternative to control CSOs.	L	L	M	L	L	L	M	L	L	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Distributed storage would be required. Potential sites would be located on private property in UW area. High potential for GSI opportunities.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-5 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN015-STOR-1 (KC) described above.</p>
37	DSN014/015-STOR-2 (KC & SPU)	Storage tank to control University and Montlake CSOs, but the storage size would be reduced by SPU's CSO control projects. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN015-STOR-3 (KC &amp; SPU) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p>
38	DSN014/015-STOR-3 (KC & SPU)	Joint King County/SPU storage tank to control King County University and Montlake CSOs and SPU CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	L	L	M	M	M	M	M	H	M	M	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN015-STOR-3 (KC &amp; SPU) described above.</p> <p><u>Implementation Schedule:</u> Same assumptions as Implementation Schedule for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN015-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN014/015-STOR-1 (KC) described above.</p>



DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – King Street

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
19	DSN028-STOR-1 (KC)	Storage for King Street CSOs only	H	L	M	H	L	L	H	L	H	M	M	H	H	M	M	M	<p><u>General Assumptions:</u> Potentially no opportunities for GSI.</p> <p><u>Human Health:</u> Treatment alternatives reduce the volume of untreated CSOs when compared to storage alternatives though the level of treatment is reduced.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required (High rating), but the project increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the alternative may require the use of hazardous chemicals for rare maintenance (High rating), but the storage tank may require ROW access (Low rating).</p>
20	DSN028-STOR-2 (KC & SPU)	Joint King County/SPU storage tank to control King County King Street CSOs and SPU CSOs.	M	L	M	M	L	L	H	L	H	M	M	H	H	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN028-STOR-1 (KC) described above.</p>
42	DSN 028/029-WWT-1 (KC)	RWSP Alternative. Wet-weather treatment facility to control King Street and Kingdome CSOs, located at Kingdome.	M	M	H	M	M	L	L	M	H	H	M	M	L	L	L	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Potentially no GSI opportunities.</p> <p><u>Siting:</u> WSDOT property may be available.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>

King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – King Street

DRAFT - Screening results are preliminary and are for discussion purposes only

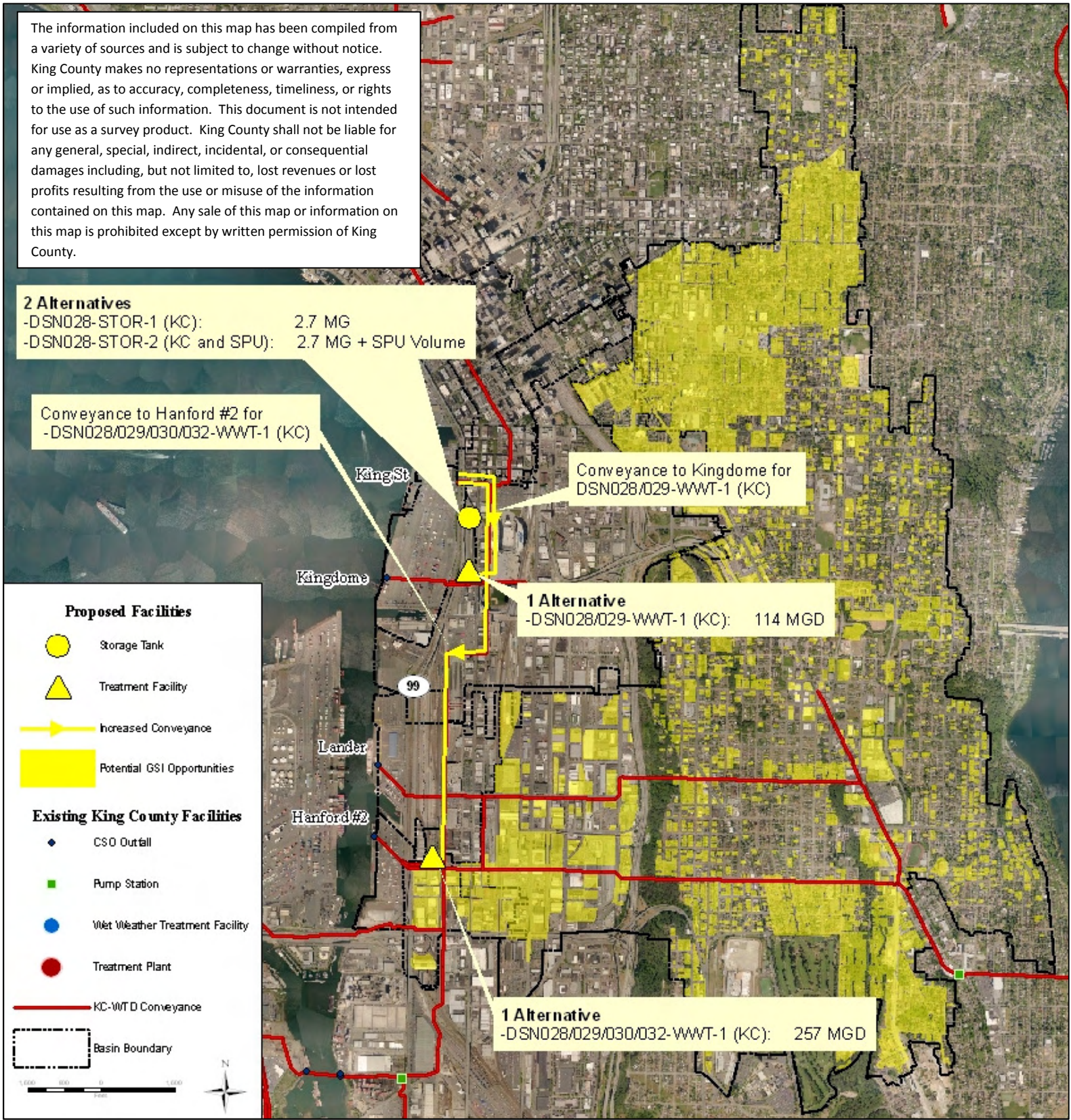
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
43	DSN028/029/030/032-WWT-1 (KC)	Wet-weather treatment facility to control Hanford #2, Lander, Kingdome, and King Street CSOs.	L	M	M	M	H	L	M	H	H	H	H	L	M	M	M	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Low potential for GSI opportunities.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN028-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> It is assumed that consolidating facilities and increasing treated CSO discharge at one CSO outfall would increase impacts to threatened and endangered species. No habitat improvement opportunities have been identified at Hanford #2 CSO outfall.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the types of permits required are likely as described in Low rating.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities, reducing the overall O&amp;M for proposed facilities (High rating), but the level of maintenance required is likely as described in Low rating.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN028/029-WWT-1 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – King Street

DRAFT - Screening results are preliminary and are for discussion purposes only



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King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Kingdome

DRAFT - Screening results are preliminary and are for discussion purposes only

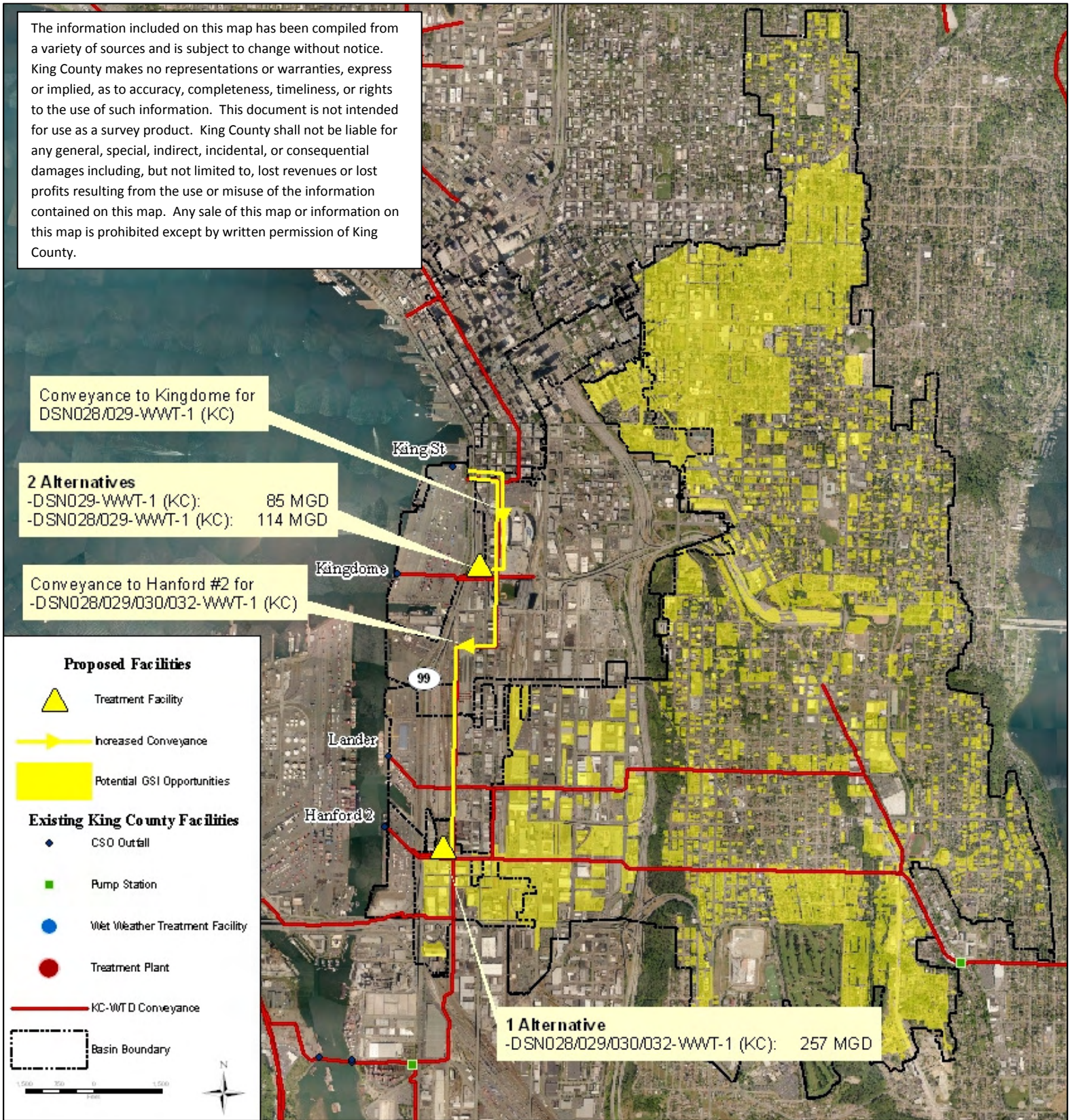
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
21	DSN029-WWT-1 (KC)	Wet-weather treatment facility to control Kingdome CSOs only.	M	M	H	M	L	L	L	L	M	H	M	M	L	L	L	M	<u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Potentially no opportunities for GSI. <u>Siting:</u> WSDOT property may be available. <u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).
42	DSN 028/029-WWT-1 (KC)	RWSP Alternative. Wet-weather treatment facility to control King Street and Kingdome CSOs, located at Kingdome.	M	M	H	M	M	L	L	M	H	H	M	M	L	L	L	M	<u>General Assumptions:</u> Same as General Assumptions for Alternative DSN029-WWT-1 (KC) described above. <u>Siting:</u> Same assumptions as Siting for Alternative DSN029-WWT-1 (KC) described above. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN029-WWT-1 (KC) described above.
43	DSN028/029/030/032-WWT-1 (KC)	Wet-weather treatment facility to control Hanford #2, Lander, Kingdome, and King Street CSOs.	L	M	M	M	H	L	M	H	H	H	H	L	M	M	M	M	<u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Low potential for GSI opportunities. <u>Overall Environmental:</u> It is assumed that consolidating facilities and increasing treated CSO discharge at one CSO outfall would increase impacts to threatened and endangered species. No habitat improvement opportunities have been identified at Hanford #2 CSO outfall. <u>Permitting Complexity:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the types of permits required are likely as described in Low rating. <u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities, reducing the overall O&M for proposed facilities (High rating), but the level of maintenance required is likely as described in Low rating. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN029-WWT-1 (KC) described above.



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Kingdome

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Lander

DRAFT - Screening results are preliminary and are for discussion purposes only

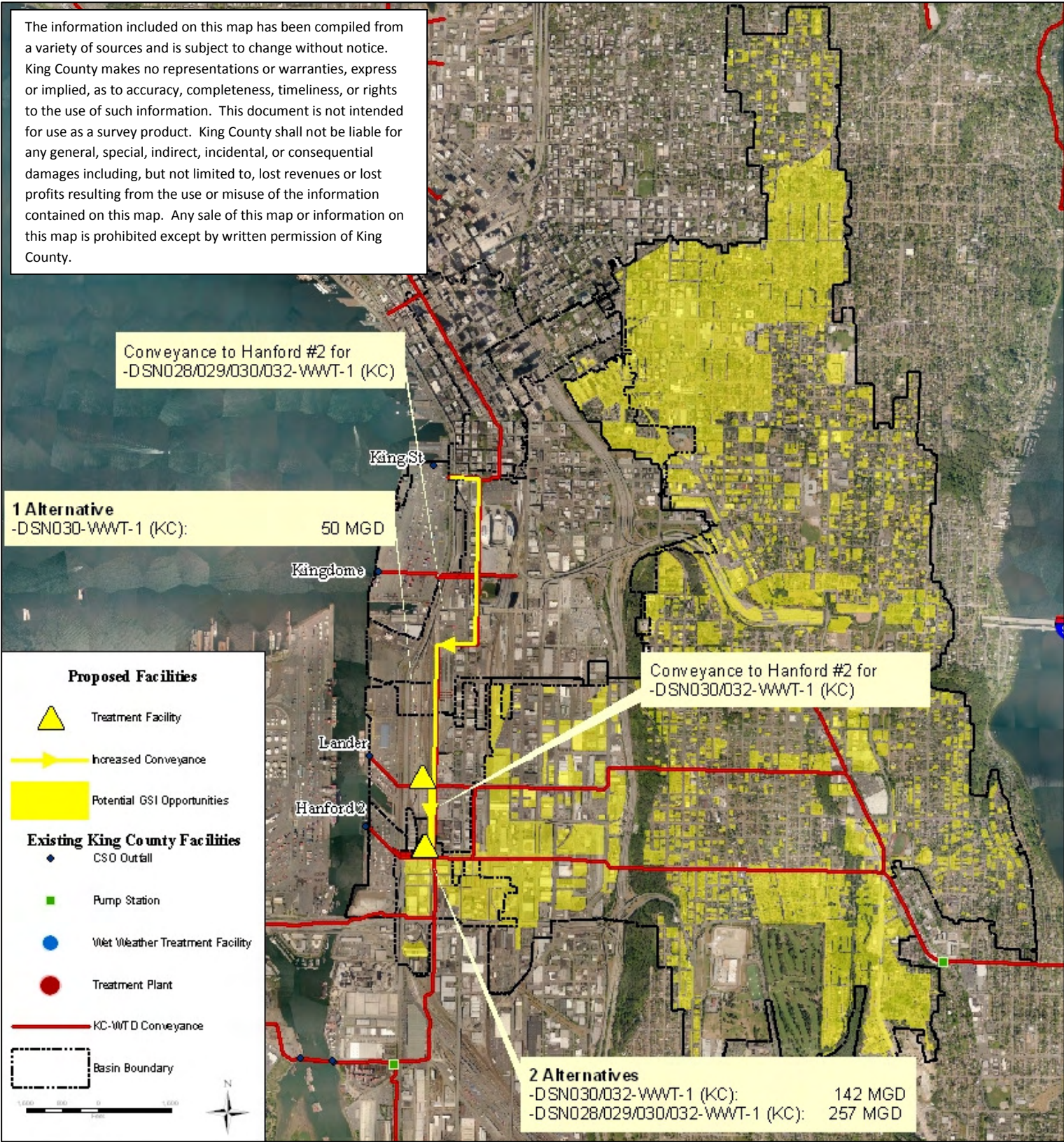
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
22	DSN030-WWT-1 (KC)	Wet-weather treatment facility to control Lander CSOs only	M	H	H	H	M	L	L	M	H	H	M	L	L	L	L	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Potentially no opportunities for GSI.</p> <p><u>Overall Environmental:</u> No habitat improvement opportunities have been identified, and it is likely that the alternative will impact threatened and endangered species.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>
43	DSN028/029/030/032-WWT-1 (KC)	Wet-weather treatment facility to control Hanford #2, Lander, Kingdome, and King Street CSOs.	L	M	M	M	H	L	M	H	H	H	H	L	M	M	M	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Low potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> It is assumed that consolidating facilities and increasing treated CSO discharge at one CSO outfall would increase impacts to threatened and endangered species. No habitat improvement opportunities have been identified at Hanford #2 CSO outfall.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the types of permits required are likely as described in Low rating.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities, reducing the overall O&amp;M for proposed facilities (High rating), but the level of maintenance required is likely as described in Low rating.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN030-WWT-1 (KC) described above.</p>
44	DSN030/032-WWT-1 (KC)	Wet-weather treatment facility to control Lander and Hanford #2 CSOs	M	M	H	H	M	L	M	M	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN028/029/030/032-WWT-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN028/029/030/032-WWT-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN028/029/030/032-WWT-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN030-WWT-1 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Lander

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Hanford at Rainier

DRAFT - Screening results are preliminary and are for discussion purposes only

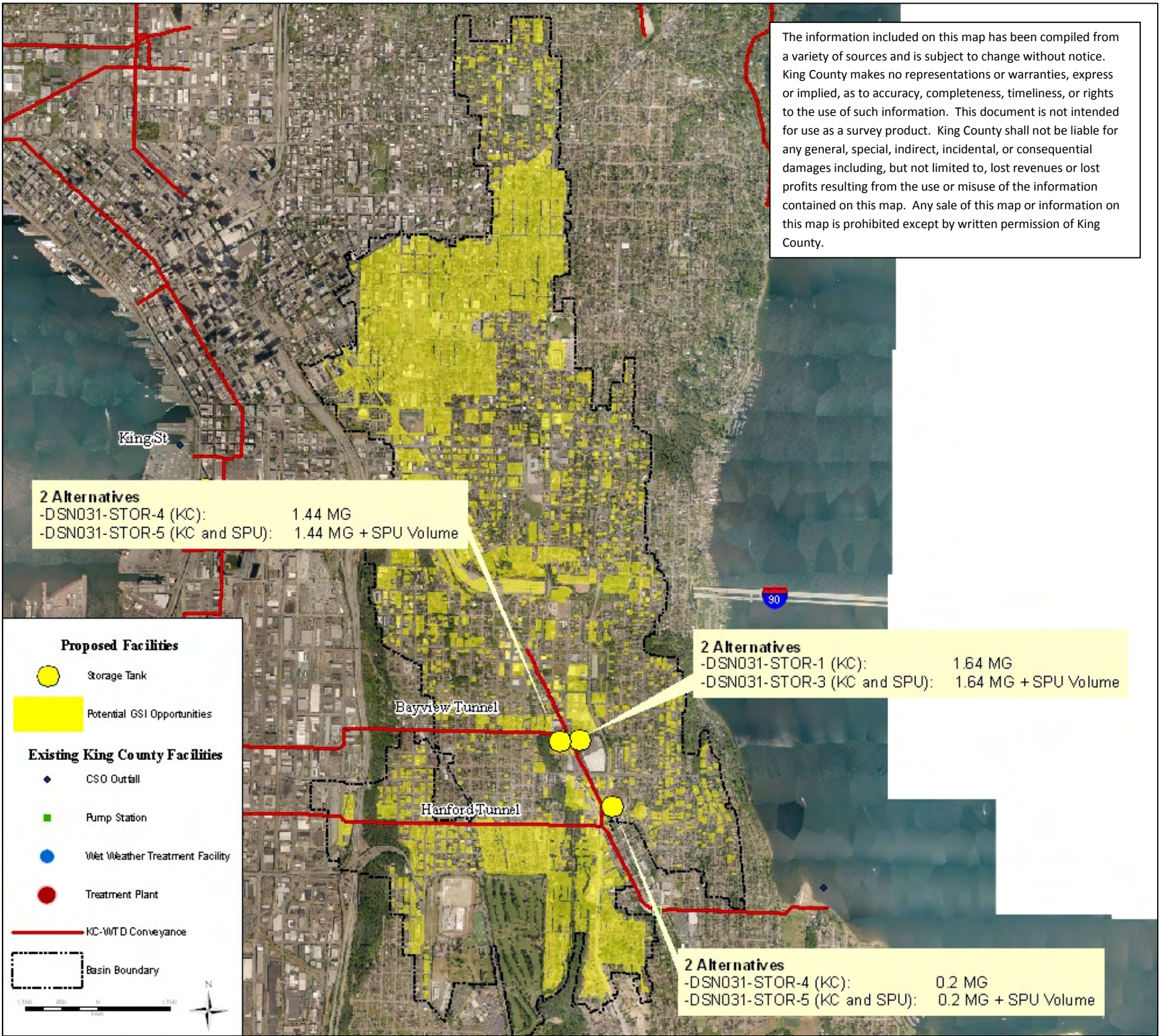
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
23	DSN031-STOR-1 (KC)	One storage tank to control Hanford #1 (Hanford @ Rainier) and Bayview N CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	H	L	M	H	M	L	H	M	M	H	M	H	M	H	H	H	<p><u>General Assumptions:</u> Potential site is located on private property. Medium to high potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required.</p>
23A	DSN031-STOR-4 (KC)	Two storage tanks to control Hanford #1 (Hanford @ Rainier) and Bayview N CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	L	M	M	M	L	L	M	L	M	H	M	H	M	M	M	H	<p><u>General Assumptions:</u> Potential sites are located on private property. Medium to high potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN031-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required (High rating), but the project increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p>
25	DSN031-STOR-3 (KC & SPU)	Joint King County/SPU storage downstream of Rainier Pump Station. One storage tank to control SPU CSOs, Hanford@Rainier, and Bayview N. It may be possible to combine GSI with this alternative to control CSOs.	M	L	M	M	M	L	H	M	M	H	M	H	M	H	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN031-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN031-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN031-STOR-1 (KC) described above.</p>
25A	DSN031-STOR-5 (KC & SPU)	Joint King County/SPU storage downstream of Rainier Pump Station. Two storage tanks to control SPU CSOs, Hanford@Rainier, and Bayview N. It may be possible to combine GSI with this alternative to control CSOs.	L	M	M	M	L	L	M	L	M	H	M	H	M	M	M	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN031-STOR-4 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN031-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN031-STOR-4 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN031-STOR-4 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Hanford at Rainier

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Hanford #2

DRAFT - Screening results are preliminary and are for discussion purposes only

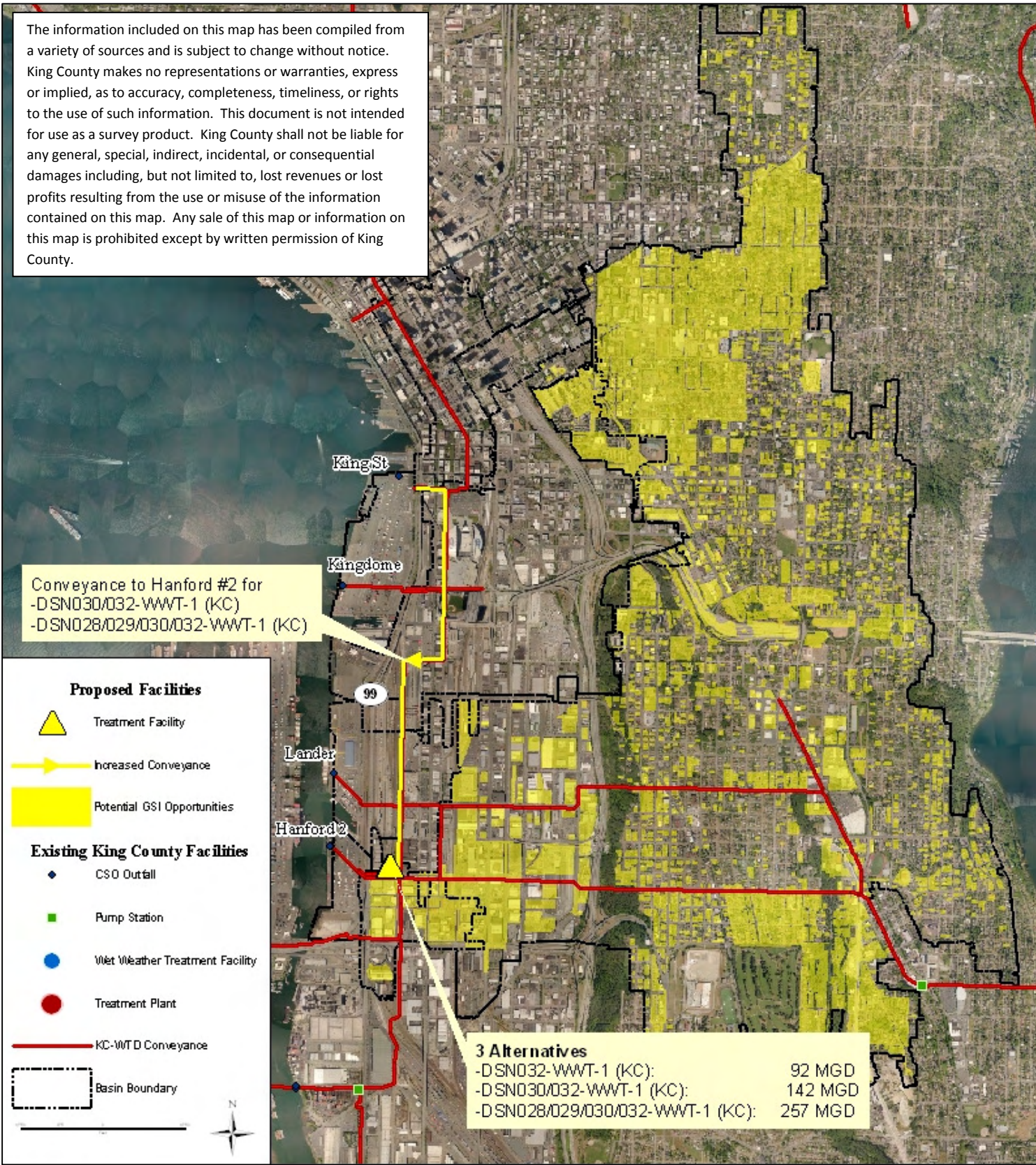
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
26	DSN032-WWT-1 (KC)	Wet-weather treatment facility to control Hanford #2 CSOs only	M	H	H	H	M	L	L	M	H	H	M	L	L	L	L	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. Low potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> No habitat improvement opportunities have been identified, and it is likely that the alternative will impact threatened and endangered species.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>
43	DSN028/029/030/032-WWT-1 (KC)	Wet-weather treatment facility to control Hanford #2, Lander, Kingdome, and King Street CSOs.	L	M	M	M	H	L	M	H	H	H	H	L	M	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN032-WWT-1 (KC) described above.</p> <p><u>Overall Environmental:</u> It is assumed that consolidating facilities and increasing treated CSO discharge at one CSO outfall would increase impacts to threatened and endangered species. No habitat improvement opportunities have been identified at Hanford #2 CSO outfall.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the types of permits required are likely as described in Low rating.</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities, reducing the overall O&amp;M for proposed facilities (High rating), but the level of maintenance required is likely as described in Low rating.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN032-WWT-1 (KC) described above.</p>
44	DSN030/032-WWT-1 (KC)	Wet-weather treatment facility to control Lander and Hanford #2 CSOs	M	M	H	H	M	L	M	M	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN032-WWT-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN028/029/030/032-WWT-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN028/029/030/032-WWT-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN032-WWT-1 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Hanford #2

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Chelan

DRAFT - Screening results are preliminary and are for discussion purposes only

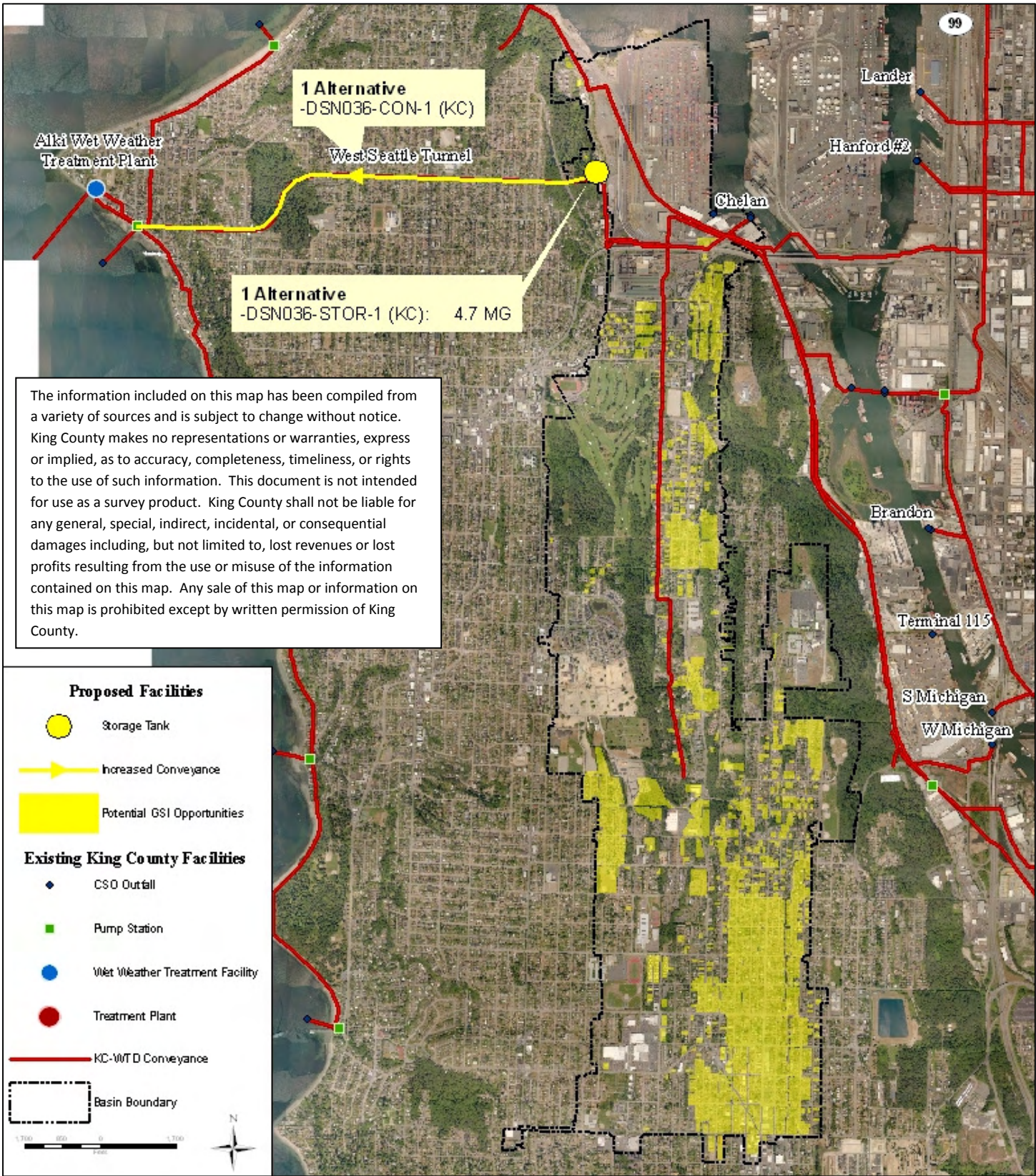
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
27	DSN036-STOR-1 (KC)	RWSP Alternative. Storage to control Chelan CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	M	M	M	H	M	L	H	M	H	M	M	H	M	H	H	H	<p><u>General Assumptions:</u> Potential site is located adjacent to West Seattle Pump Station. High potential for GSI opportunities.</p> <p><u>Human Health:</u> Treatment alternatives reduce the volume of untreated CSOs when compared to storage alternatives though the level of treatment is reduced.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required.</p>
28	DSN036-CON-1 (KC)	Transfer flows to Alki Tunnel and Wet Weather Treatment Plant. It may be possible to combine GSI with this alternative to control CSOs.	M	L	L	H	H	M	L	L	H	H	H	M	L	L	H	M	<p><u>General Assumptions:</u> New outfall is required in addition to upgrade of 63rd Pump Station and Alki Wet Weather Treatment Plant. High potential for GSI opportunities.</p> <p><u>Coordination with Other King County Projects:</u> Potential opportunity for coordinating with improvements to existing King County facilities.</p> <p><u>Human Health:</u> Treatment alternatives reduce the volume of untreated CSOs when compared to storage alternatives though the level of treatment is reduced. Alternative increases flows to existing treatment facility.</p> <p><u>Overall Environmental:</u> Designated rating of Medium because it is assumed that the alternative moves the CSO discharge location to a less sensitive water body habitat (High rating), but potential habitat improvement opportunities near the Alki Wet Weather Treatment Plant outfall have not been identified (Low rating).</p> <p><u>Employee Safety:</u> Designated rating of Medium because the existing facilities do not require ROW access (High rating), but additional hazardous chemicals may be required for CSO treatment (Low rating).</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Chelan

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Terminal 115

DRAFT - Screening results are preliminary and are for discussion purposes only

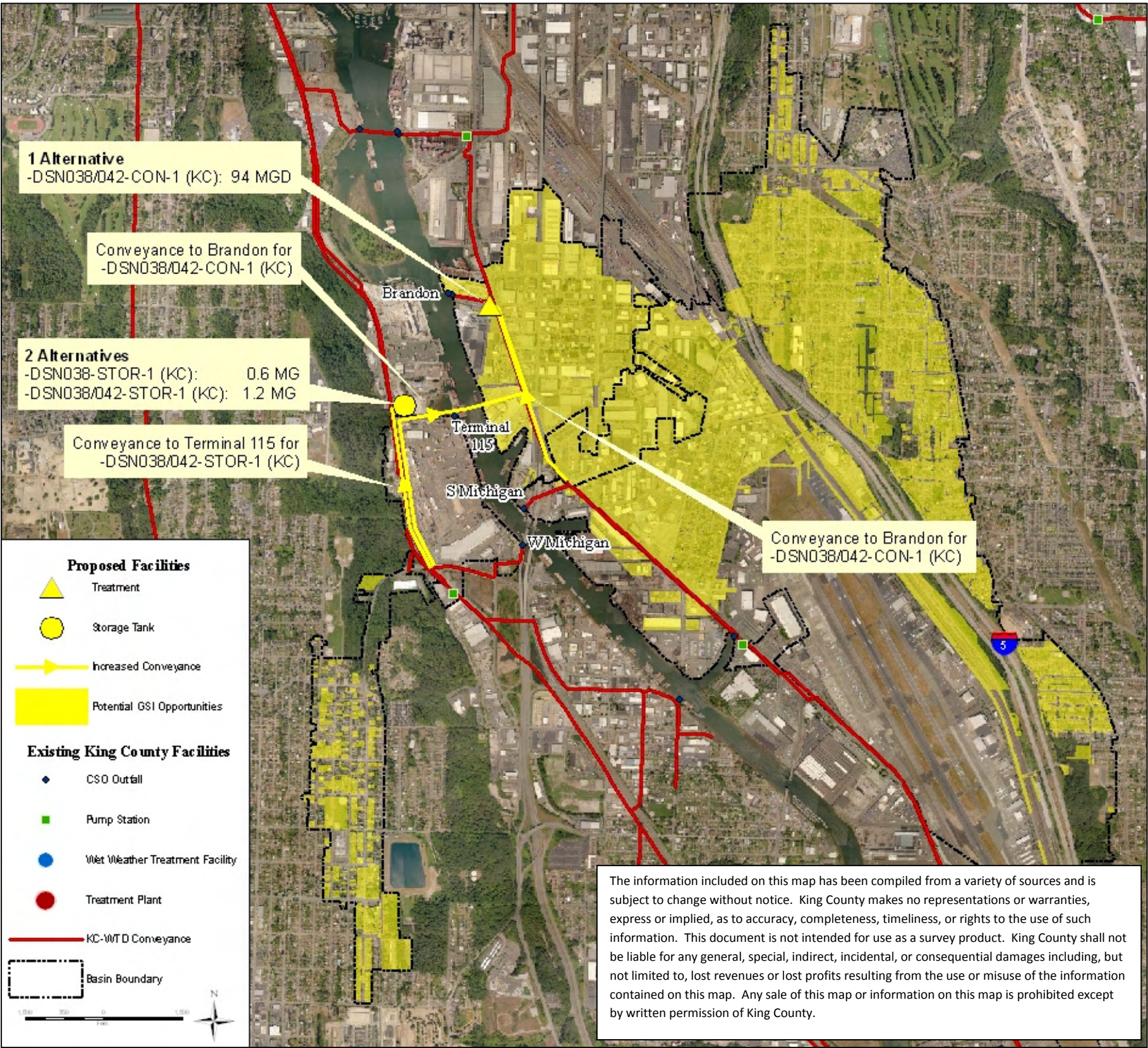
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
29	DSN038-STOR-1 (KC)	RWSP Alternative. Storage to control Terminal 115 CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	H	M	M	H	M	L	M	M	H	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Potential site is located on private property. Potential for GSI opportunities, but it would not be located in the Terminal 115 CSO basin.</p> <p><u>Human Health:</u> Treatment alternatives reduce the volume of untreated CSOs when compared to storage alternatives though the level of treatment is reduced.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required, and critical or sensitive areas are likely not impacted (High rating); however, the project controls one CSO site and increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project controls one CSO site and increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p>
45	DSN038/04 2-STOR-1 (KC)	Storage to control W Michigan and Terminal 115 CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	M	M	M	H	H	L	H	H	H	M	M	H	M	H	H	H	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN038-STOR-1 (KC) described above.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN038-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN038-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required. Potential storage tank is located outside of 200 ft from shoreline.</p>
45A	DSN038/04 2-CON-1 (KC)	Conveyance of Terminal 115 CSOs to W Michigan to proposed treatment facility at Brandon. It may be possible to combine GSI with this alternative to control CSOs.	L	M	L	H	H	L	H	H	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN038-STOR-1 (KC) described above.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN038-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the existing outfall requires replacement (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and O&amp;M required (High rating), but the level of maintenance required is likely as described in Low rating for the treatment facility.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Terminal 115

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – South Michigan

DRAFT - Screening results are preliminary and are for discussion purposes only

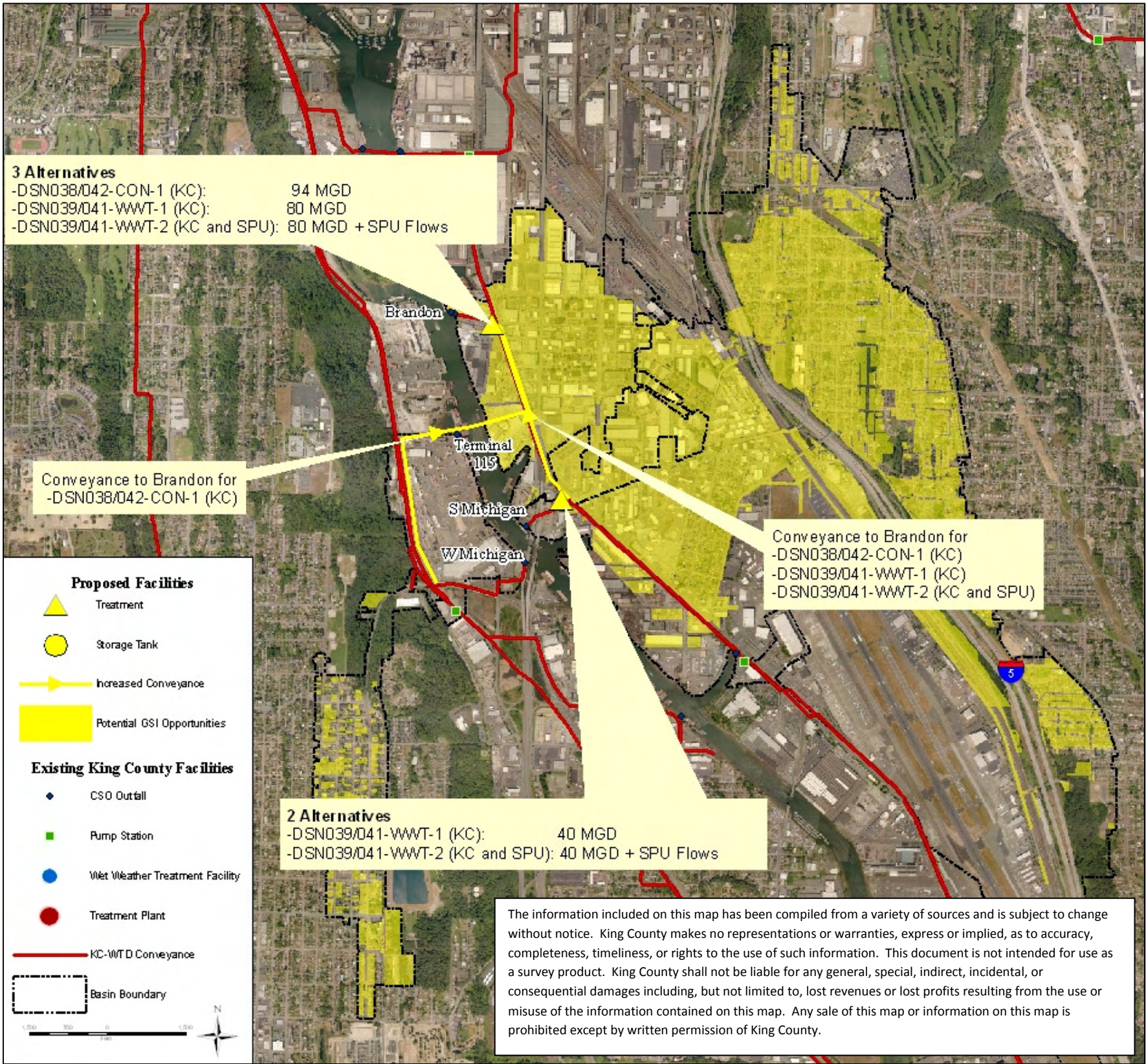
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
31	DSN039-WWT-1 (KC)	RWSP Alternative. Wet-weather treatment facility to control S Michigan CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	M	H	H	H	M	L	M	M	H	H	M	M	L	L	L	M	<u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. High potential for GSI opportunities. <u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).
32	DSN039-WWT-2 (KC & SPU)	Joint King County/SPU wet-weather treatment facility to control King County S Michigan CSOs and SPU CSO Basin 111H CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	H	H	M	M	L	M	M	H	H	M	M	L	L	L	M	<u>General Assumptions:</u> Same as General Assumptions for Alternative DSN039-WWT-1 (KC) described above. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN039-WWT-1 (KC) described above.
45A	DSN038/04 2-CON-1 (KC)	Conveyance of Terminal 115 CSOs to W Michigan to proposed treatment facility at Brandon. It may be possible to combine GSI with this alternative to control CSOs.	L	M	L	H	H	L	H	H	H	H	M	M	L	M	M	M	<u>General Assumptions:</u> Potential site is located on private property. Potential for GSI opportunities, but it would not be located in this basin. <u>Permitting Complexity:</u> Designated rating of Medium because project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the existing outfall requires replacement (Low rating). <u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and O&M required (High rating), but the level of maintenance required is likely as described in Low rating for the treatment facility. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN039-WWT-1 (KC) described above.
46	DSN039/04 1-WWT-1 (KC)	Wet-weather treatment facility to control S Michigan and Brandon CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	M	H	H	H	L	H	H	H	H	M	M	L	M	M	M	<u>General Assumptions:</u> Same as General Assumptions for Alternative DSN039-WWT-1 (KC) described above. <u>Siting:</u> Property located south of Brandon CSO outfall is owned by King County. <u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN038/042-CON-1 (KC) described above. <u>Operations &amp; Maintenance:</u> Same assumptions as Operations & Maintenance for Alternative DSN038/042-CON-1 (KC) described above. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN039-WWT-1 (KC) described above.
46A	DSN039/04 1-WWT-2 (KC & SPU)	Wet-weather treatment facility to control S Michigan and Brandon CSOs and SPU CSOs (Basin 111H). It may be possible to combine GSI with this alternative to control CSOs.	L	M	H	M	H	L	H	H	H	H	M	M	L	M	M	M	<u>General Assumptions:</u> Same as General Assumptions for Alternative DSN039-WWT-1 (KC) described above. <u>Siting:</u> Property located south of Brandon CSO outfall is owned by King County. <u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN038/042-CON-1 (KC) described above. <u>Operations &amp; Maintenance:</u> Same assumptions as Operations & Maintenance for Alternative DSN038/042-CON-1 (KC) described above. <u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN039-WWT-1 (KC) described above.



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – South Michigan

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Brandon

DRAFT - Screening results are preliminary and are for discussion purposes only

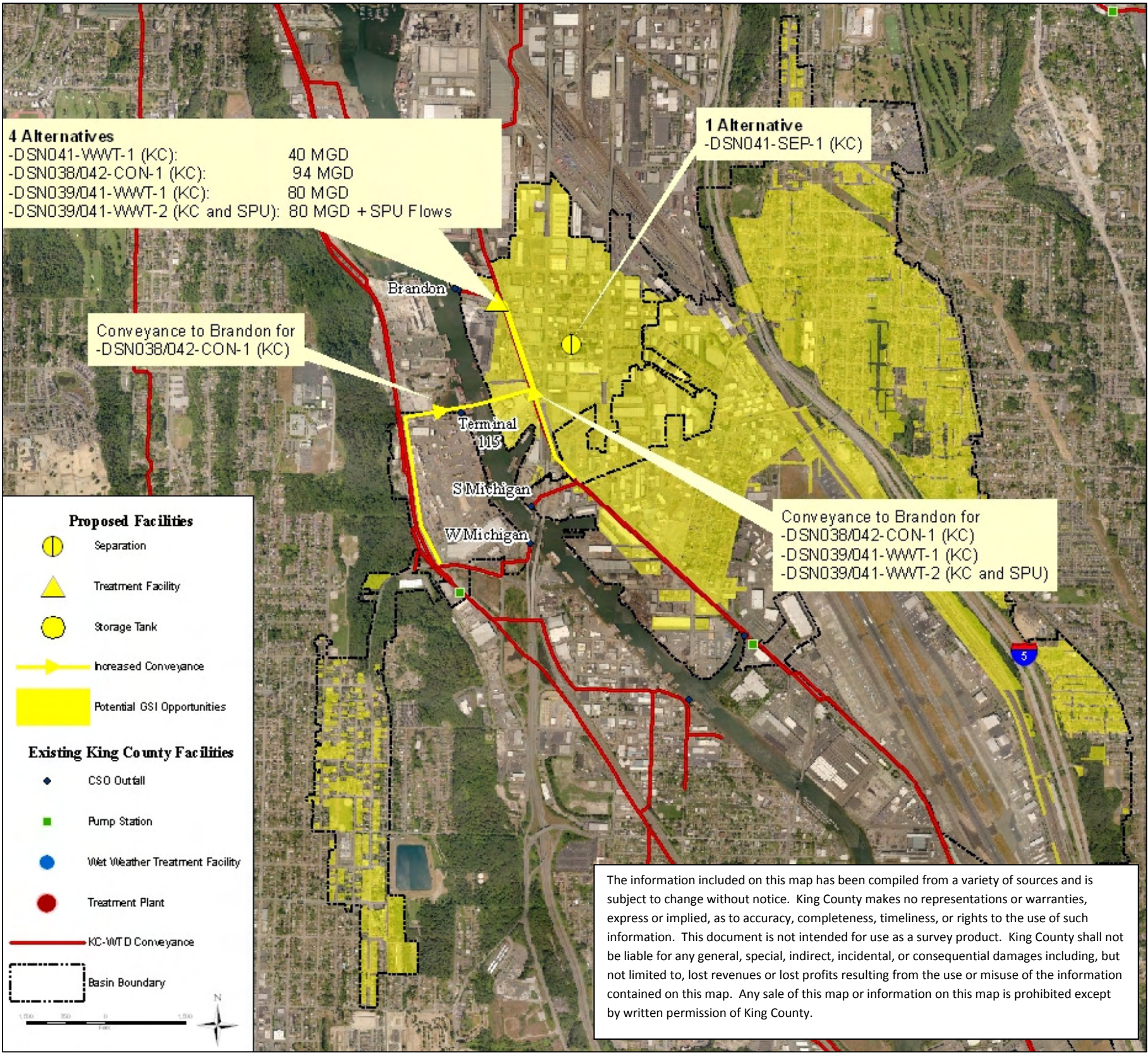
Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
33	DSN041-WWT-1 (KC)	RWSP Alternative. Wet-weather treatment to control Brandon CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	M	H	H	H	M	L	L	M	H	H	M	M	L	L	L	M	<p><u>General Assumptions:</u> Potential site is located on private property. Existing outfall requires replacement. High potential for GSI opportunities.</p> <p><u>Siting:</u> Property located south of Brandon CSO outfall is owned by King County.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>
33A	DSN041-SEP-1 (KC)	Evaluation of separating sanitary sewer and storm drainage in Brandon CSO basin. It may be possible to combine GSI with this alternative to control CSOs.	H	M	H	H	H	L	H	L	H	H	M	H	H	H	H	H	<p><u>General Assumptions:</u> Sewer separation would eliminate the need for a storage or wet weather treatment facility to control CSOs. High potential for GSI opportunities.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p>
45A	DSN038/04 2-CON-1 (KC)	Conveyance of Terminal 115 CSOs to W Michigan to proposed treatment facility at Brandon. It may be possible to combine GSI with this alternative to control CSOs.	L	M	L	H	H	L	H	H	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Potential site is located on private property. Potential for GSI opportunities, but it would not be located in this basin.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the existing outfall requires replacement (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and O&amp;M required (High rating), but the level of maintenance required is likely as described in Low rating for the treatment facility.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN041-WWT-1 (KC) described above.</p>
46	DSN039/04 1-WWT-1 (KC)	Wet-weather treatment facility to control S Michigan and Brandon CSOs. It may be possible to combine GSI with this alternative to control CSOs.	M	M	H	H	H	L	H	H	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN041-WWT-1 (KC) described above.</p> <p><u>Siting:</u> Same assumptions as Siting for Alternative DSN041-WWT-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN038/042-CON-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN038/042-CON-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN041-WWT-1 (KC) described above.</p>
46A	DSN039/04 1-WWT-2 (KC & SPU)	Wet-weather treatment facility to control Michigan and Brandon CSOs and SPU CSOs (Basin 111H). It may be possible to combine GSI with this alternative to control CSOs.	L	M	H	M	H	L	H	H	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Same as General Assumptions for Alternative DSN041-WWT-1 (KC) described above.</p> <p><u>Siting:</u> Same assumptions as Siting for Alternative DSN041-WWT-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Same assumptions as Permitting Complexity for Alternative DSN038/042-CON-1 (KC) described above.</p> <p><u>Operations &amp; Maintenance:</u> Same assumptions as Operations &amp; Maintenance for Alternative DSN038/042-CON-1 (KC) described above.</p> <p><u>Employee Safety:</u> Same assumptions as Employee Safety for Alternative DSN041-WWT-1 (KC) described above.</p>



King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – Brandon

DRAFT - Screening results are preliminary and are for discussion purposes only





King County 2012 Combined Sewer Overflow Control Program Review

Screening of Preliminary Alternatives (H, M, L) – West Michigan

DRAFT - Screening results are preliminary and are for discussion purposes only

Criteria			Technical Complexity	Flexibility/Adaptive Management	Constructability	Implementation Schedule	Siting	Coordination with Other KC Projects	Relative Life-Cycle Costs	Construction Impacts	Potential Community Impacts	Human Health	Environmental/Social Justice	Overall Environmental	Sustainability	Permitting Complexity	Operations & Maintenance	Employee Safety	Additional Details and Assumptions for Ratings
Line No.	Alternative	Description																	
30	DSN042-STOR-1 (KC)	Storage to control W Michigan CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	H	M	M	H	M	L	M	M	H	M	M	H	M	M	M	H	<p><u>General Assumptions:</u> Potential site is located on private property. High potential for GSI opportunities.</p> <p><u>Human Health:</u> Treatment alternatives reduce the volume of untreated CSOs when compared to storage alternatives though the level of treatment is reduced.</p> <p><u>Overall Environmental:</u> It is assumed that one untreated CSO discharge per year per outfall will not impact threatened and endangered species in the receiving water body. Other two criterion questions do not apply to this alternative because it is assumed that the existing CSO outfall does not need to be upsized or replaced, and the CSO discharge location is not being moved.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because conditional use and/or variance are likely not required, and critical or sensitive areas are likely not impacted (High rating); however, the project controls one CSO site and increases the number of potential King County CSO control facilities and permits required (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the level of maintenance required is likely as described in High rating, but the project controls one CSO site and increases the number of potential King County CSO control facilities and O&amp;M required (Low rating).</p>
45	DSN038/04 2-STOR-1 (KC)	Storage to control W Michigan and Terminal 115 CSOs only. It may be possible to combine GSI with this alternative to control CSOs.	M	M	M	H	H	L	H	H	H	M	M	H	M	H	H	H	<p><u>General Assumptions:</u> Potential site is located on private property. Potential for GSI opportunities, but the GSI would not be located in this basin.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN042-STOR-1 (KC) described above.</p> <p><u>Overall Environmental:</u> Same assumptions as Overall Environmental for Alternative DSN042-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Conditional use and/or variance are likely not required. Potential storage tank is located outside of 200 ft from shoreline.</p>
45A	DSN038/04 2-CON-1 (KC)	Conveyance of Terminal 115 CSOs to W Michigan to proposed treatment facility at Brandon. It may be possible to combine GSI with this alternative to control CSOs.	L	M	L	H	H	L	H	H	H	H	M	M	L	M	M	M	<p><u>General Assumptions:</u> Potential site is located on private property. Potential for GSI opportunities, but it would not be located in this basin. Existing outfall requires replacement.</p> <p><u>Human Health:</u> Same assumptions as Human Health for Alternative DSN042-STOR-1 (KC) described above.</p> <p><u>Permitting Complexity:</u> Designated rating of Medium because project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and permits required (High rating), but the existing outfall requires replacement (Low rating).</p> <p><u>Operations &amp; Maintenance:</u> Designated rating of Medium because the project controls multiple CSO sites and reduces the number of potential King County CSO control facilities and O&amp;M required (High rating), but the level of maintenance required is likely as described in Low rating for the treatment facility.</p> <p><u>Employee Safety:</u> Designated rating of Medium because alternative may not require ROW access (High rating), but the alternative likely requires the use of hazardous chemicals for CSO treatment (Low rating).</p>



DRAFT - Screening results are preliminary and are for discussion purposes only

