



with

DIKE DISTRICT #12 AS CO-LEAD AGENCY

**DRAFT ENVIRONMENTAL IMPACT STATEMENT
TO ADOPT A STRATEGIC PROGRAM FOR COMPREHENSIVE FLOOD
HAZARD MITIGATION IN THE BURLINGTON URBAN AREA AND
ADJACENT LAND WITH A RANGE OF STRUCTURAL
AND NON-STRUCTURAL COMPONENTS**

THIS IS A PHASED REVIEW PURSUANT TO WAC 197-11-060 (5)

CITY OF BURLINGTON, WASHINGTON AND DIKE DISTRICT #12

Prepared for review by Citizens and Government Agencies in Compliance with the State Environmental Policy Act of 1971 (Chapter 43.21C Revised Code of Washington) as revised; the State Environmental Policy Act Rules, as revised (Chapter 197-11 Washington Administrative Code); and City of Burlington Municipal Code Chapter 15.12 Environmental Policy; and the National Environmental Policy Act Pub. L 91-19, 42 U.S.C.4321-4347 as amended.

DATE OF ISSUE: *February 13, 2009*

COMMENTS DUE: *March 13, 2009*

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FACT SHEET

PROJECT TITLE AND DESCRIPTION: Strategic Program for Comprehensive Flood Hazard Mitigation in the Burlington Urban Area and Adjacent Land with a Range of Structural and Non-Structural Components

The proposed action is to construct 100-year certified levees in appropriate locations, and provide other flood measures as necessary and appropriate based on the Federal Emergency Management Agency's (FEMA) final Flood Insurance Study, when this study is adopted following resolution of any appeals.

Levee certification with FEMA accreditation is required so that FEMA will include the existence of the levees in their computer model that sets the Base Flood Elevations for Burlington. Without the levees being considered in the modeling, Base Flood Elevations will increase significantly and this is a serious problem in a city that has very small lots and anticipates a substantial redevelopment of much of the City over the next twenty years.

The City of Burlington and Dike District 12 recognize their responsibility to ensure that flood protection measures which help protect Burlington's urban area are, to the extent possible, also helpful in protecting adjacent communities. It is the goal of the City and Dike District 12 to implement flood measures which lower risk to adjacent communities, in addition to Burlington's urban area, to the maximum practicable extent.

Other components of the proposed action include modification of the City of Burlington Urban Growth Area (UGA) consistent with the City's 2005 adopted Comprehensive Plan. This includes a transfer and purchase of development rights program, the Burlington Agricultural Heritage Credit program, to help fund the Skagit Farmland Legacy program to acquire farmland development rights in a targeted area around Burlington to protect overbank flow paths for floodwaters and preserve agriculture in the Skagit River valley. The potential health hazard posed by the high density Raspberry Ridge farmworker housing site that is on septic tanks is also covered. A range of land use alternatives is presented, in order to maximize flexibility in the decision-making process and ensure adequate analysis of the impacts of each alternative.

This project consists of several related actions implementing the 2008-2013 update of the Burlington Floodplain Management and Natural Hazard Mitigation Plan.

PROPOSED ACTION AND ALTERNATIVES

1. Proposed Action – Construct 100-year certified levees in appropriate locations, and provide other flood measures as necessary and appropriate based on FEMA’s final Flood Insurance Study, when this study is adopted following resolution of any appeals.

Alternative #1A - Modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the hydrology developed for Skagit County, Burlington and Mount Vernon by Pacific International Engineering that is not presently accepted by the Army Corps of Engineers. It is not known at present whether FEMA would accredit levees certified using this hydrology.

Alternative #1B - Modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the Army Corps of Engineers hydrology, if that becomes the basis for the new FIRM maps, and evaluate options within that framework.

2. No Action – This is essentially embodied in the current General Investigation study that has been underway for many years by the County and the Corps of Engineers, and because of lack of adequate funding will not be completed until 2018 at the earliest.

Doing nothing will result in mandatory adoption of higher Base Flood Elevations that may show up to 6.4 feet increase in height in some locations in Burlington. This will be devastating for the future development of vacant and underutilized land in Burlington, and may preclude the redevelopment of historic downtown Burlington with its 30-foot wide lots.

No action will generate extremely high flood insurance premiums for the families that live in the community. While the existing buildings will be “grandfathered in”, according to FEMA, citizens have already been hit hard with much higher rates for existing conditions when mortgage lenders get involved at the time of sale or refinancing. Crawl spaces are often reclassified as basements, and if insurance carriers are changed, the policy is no longer subject to the low original rates.

3. Remove approximately 30 acres of land from the UGA and exchange for land located at the northeast corner of Pulver and Peterson Road for a school site.

The 30 acres currently in the UGA will be returned to agricultural resource zoning and the school site will be redesignated as UGA, from its agricultural zoning classification. Adjacent farmland development rights will be acquired and a permanent urban separator designed along the boundaries of the site, coordinated with the adopted Connected Open Space Plan for Burlington.

4. Evaluate the concept of adding Raspberry Ridge to the UGA so that sanitary sewer is provided to mitigate potential health hazard in event of a flood.

This area is proposed to be added to the Burlington UGA and zoned as Open Space in order to be able to provide sanitary sewer to the high density farmworker housing that has been constructed on the site that is zoned as Agricultural Natural Resource Land (Ag-NRL). The goal is to protect the citizens of Burlington from contamination by sewage from failed septic systems in the event of a flood. This area was proposed to be included as a sending zone for farmland development rights under the transfer/purchase of development rights provisions adopted in the Burlington Zoning Code in 1994. However, this proposal was rejected by Skagit County at that time.

PROPONENT

The City of Burlington in cooperation with Skagit County

TENTATIVE DATE FOR IMPLEMENTATION

2009 to start the projects; end date to be determined

CO-LEAD AGENCIES

City of Burlington and Dike District #12

RESPONSIBLE OFFICIALS AND CONTACT PERSON

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Burlington, WA 98233

LICENSES, PERMITS AND APPROVALS

- Amendment to Burlington Natural Hazard Mitigation Plan
- Amendment to Skagit County Natural Hazard Mitigation Plan
- Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) for 100-year certified levees
- Federal Emergency Management Agency approval and/or permits
- Shoreline Substantial Development Permit
- Coastal Zone Management Consistency Determination
- Skagit County Action to approve plan and issue permits as needed for work in unincorporated areas

AUTHORS AND PRINCIPAL CONTRIBUTORS

- Margaret Fleek, City of Burlington Planning Director
- Dike District #12 Commissioners: Charles Bennett, John Burt, Marv Cannon
- Chal Martin, Public Works Director
- Federal Emergency Management Agency procedures and levee certification program
- Skagit County Planning and Community Development and Public Works Departments
- Pacific International Engineering (PIE)
- Northwest Hydraulic Consultants (NHC)
- Many related reports and studies including work by the US Army Corps of Engineers

DATE OF ISSUE OF DRAFT ENVIRONMENTAL IMPACT STATEMENT

February 13, 2009

PUBLIC HEARING TO RECEIVE COMMENTS

March 12, 2009 at 4:00 p.m., in the City Council Chambers at 833 South Spruce Street, Burlington WA

DATE COMMENTS ARE DUE ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

March 13, 2009

DATE FINAL ACTION IS PLANNED

To be determined

TYPE AND TIMING OF SUBSEQUENT ENVIRONMENTAL REVIEW

Supplemental environmental review may be required if work is needed waterward of the Ordinary High Water (OHW) mark on the Skagit River or when additional site specific components are identified. A review under the National Environmental Policy Act (NEPA) including a biological assessment with discipline reports is in process for the levee setback and certification project through the three bridge corridor. This work will be incorporated by reference for the overall program when it is completed.

LOCATION OF BACKGROUND MATERIAL

Background material and supporting documents may be found at the offices of the Burlington Planning Department located at 833 S. Spruce Street, Burlington, Washington, with copies available at the Burlington Public Library located at 820 East Washington Avenue.

COST OF DRAFT ENVIRONMENTAL IMPACT STATEMENT

\$20.00

INTRODUCTORY NOTE

The first programmatic step will be completed by the end of 2008 with final approval of the five year update of the multi-jurisdictional Skagit County Natural Hazard Mitigation Plan that includes significant amendments to the Burlington Floodplain Management and Natural Hazard Mitigation Chapter. This is the framework planning document to set the goal of upgrading appropriate sections of the existing levees and constructing new levees, or providing other measures as necessary to result in certified levees where appropriate to protect the City of Burlington's Urban Area. The purpose is to stabilize the Base Flood Elevations for the long term future, ensure predictable development standards, protect the public from the 100-year flood (which has a 1% probability of occurring in any year) initially, while planning for and implementing measures to provide incrementally greater protection as time goes by.

The purpose and need to prepare an Environmental Impact Statement arises because the City of Burlington is evaluating the options for the future to protect the urban area from flooding. An array of complicated issues is unfolding in a manner that forces the City to focus action on improving the levee system to provide 100-year flood protection with certified levees, and take related actions to optimize local flood hazard mitigation. The engineering, design and construction work necessary for certification will be overseen by a licensed engineer with expertise in levee design because the U.S. Army Corps of Engineers is not available or funded to do that work. The accreditation of the levees will be overseen by FEMA. This is a two part process involving application for a Conditional Letter of Map Revision (CLOMR) followed by a Letter of Map Revision (LOMR).

This program will fit into what is generally perceived to be the long term regional strategy. In order to work effectively with local, state and federal agencies and elected officials to protect the urban area of Burlington from flooding, the plan of action must be evaluated in the regional setting to ensure that projects done here will not adversely affect adjacent jurisdictions and interests.

The following actions have led to the decision by the City of Burlington and Dike District #12 to move ahead at this time to obtain better protection from potential flooding:

- 1. FEMA changes its policies on key program components, leading to long term uncertainty for property owners and businesses.**

July 3, 1984 is the date of publication of the City of Burlington, Washington Flood Insurance Study. The purpose of the study was to convert Burlington to the regular program of flood insurance.

At that time, conventional floodways were determined not to be appropriate for the Skagit River delta area for a number of reasons (See Appendix D, Exhibit 6, page 18.) In lieu of a floodway, pursuant to additional study, FEMA accepted a "most probable failure point" analysis, which had the flood overtopping the railroad tracks at Sterling. In Burlington, FEMA helped with a compromise which was to designate Gages Slough a "Special Flood Risk Area." This area does not have all the qualities of a floodway, but the designation is quite restrictive with flow-through

house designs and other elements. Now, a regulatory floodway is being proposed for “later adoption” by FEMA, following changes to the Base Flood Elevations, and it is critical to Burlington that the adopted program of protecting overbank flow paths through farmland preservation be retained as a floodway-like option.

In addition, a compromise was reached on how high the Base Flood Elevations would be. Today, the criteria for the “map modernization” program does not allow the type of compromises made in the past, as described above. Further, current flood modeling under FEMA’s guidance does not allow any credit to be given for levees that are not certified.

2. Burlington is not assured that all the dams in the river will be functioning to optimize flood hazard mitigation.

Additional potential for enhancing flood management and mitigation utilizing the hydropower dams that are owned by Puget Sound Energy was not directly addressed in the recently final relicensing process.

The relicensing of the Baker Dams for an additional 50 years includes agreements for funding mitigation actions of many kinds, and expenditure of funds to accomplish those goals; however, flood hazard mitigation is not currently being addressed, and no funding has been set aside to upgrade the spillways on Lower Baker Dam. Without the ability to more quickly evacuate water in advance of a flood, any future benefits of additional flood storage in this river system cannot be counted on to assist in taking the peaks off flood events. Puget Sound Energy has stated that they intend to work with local jurisdictions on an informal basis. The November 2008 flood threat was handled extremely efficiently with the Corps of Engineers taking over operation of the dams and the peak flood elevation was reduced by about four feet.

For the mainstem Skagit system, Ross Dam and reservoir provide valuable flood storage during the winter flood season; however, the availability of this flood storage must be moved to mid-October, instead of 1 December as the license currently allows.

3. Higher base flood elevations are certain under any option and Burlington has major concerns with computer modeling and hydrology and hydraulic assumptions.

The studies and estimates that have been completed for determining how much water will get to Burlington in a 100-year base flood event (called the Flood Frequency Analysis) are inconsistent, and independent third party review indicates that there is a need to lower the estimates. The U.S. Army Corps of Engineers, as FEMA’s technical consultant for the Skagit River Flood Insurance Study remapping effort, is responsible for the hydrologic analysis and hydraulic modeling that provides the basis for updating the Flood Insurance Rate Maps. The Corps is continuing to incorporate into its flood frequency analysis estimates of historic flooding that have been questioned by the City’s qualified technical consultant. In addition, the Corps’ work also discounts a number of years of gage data. Several other issues, some emerging, raise valid concerns about hydrology and hydraulic assumptions. The complications of flood hazard analysis in the Skagit River Delta area are very real, not to be overstated.

The different numbers are presented by three different groups with respect to the Skagit River hydrology, as shown in the table below. As can be seen at a glance, the options for effective flood hazard mitigation are significantly different depending on the assumptions about hydrology.

The results of the current approach used by FEMA (via the Corps) are of great concern for the City of Burlington, because it is FEMA policy to base its analysis on an artificial condition; that is, that none of the levee system currently in place exists. No credit is given for having levees at all, unless the levees are certified as providing 100-year flood protection. It is the City's position that this policy constitutes a change in the Levee Failure Policy that must be reviewed under NEPA pursuant to Title 44: Emergency Management and Assistance, Subpart B, Section 10.6.

The model that has been presented by FEMA to the City identifies over 6 feet of water on Interstate 5 in the middle of the Burlington retail core using the current assumptions by the Corps of Engineers combined with the FEMA floodplain modeling assumptions.

It is the City's position that these Base Flood Elevations, if adopted, will have a severe, long term negative impact the economy of the region. Immediate effects will be on the redevelopment of old downtown, where the lots are 30 feet wide. Elevating the first occupied floor up one story will be a difficult and costly challenge for property owners and the community. The market conditions for redevelopment of old downtown are slow to emerge and there is no predicting the timeline for revitalization at this point.

Even the most accurate computer modeling appears to result in Higher Base Flood elevations.

4. A viable regional strategy is not in place.

An array of flood hazard mitigation strategies exist and have been studied for many years in Skagit County, but there is no regional strategy for approving or implementing them. Skagit County is working toward development of an update of the Skagit County Comprehensive Flood Hazard Management Plan. The City of Burlington is not represented on the Advisory Committee and the scope of work appears limited to the Corps of Engineers General Investigation without consideration of independent studies by Burlington and Skagit County. There does not appear to be an emerging consensus on the best course of action, for a number of reasons, including the fact that few of the proposed measures will work with the hydrology set forth by the Corps.

Some of the relevant components include flood storage at Lower Baker Dam, better utilization of the Nookachamps area for flood storage when combined with better protection of the Sedro-Woolley sewer plant, extending levee protection along the railroad east of Burlington to a point so the site does not require flood fighting, setting back the levees in the multiple bridge corridor through Burlington and Mount Vernon, and protecting overbank flow paths in lieu of a regulatory floodway.

These are close-to-Burlington examples of flood hazard mitigation strategies that offer real opportunities for flood hazard mitigation, some of which may be cost effective from a practical

point of view, but which may not meet the Corps of Engineers' test for cost effectiveness using the Corps' very limited cost-benefit analysis methodology.

5. There is no other option to ensure access to flood insurance to protect property owner's rights.

- a. FEMA has stated its plans to propose significant increases in the 100-year Base Flood Elevation, and because FEMA regulates by controlling the lending institutions, opting out of the flood insurance program is not an alternative.
- b. Burlington strongly supports participating in the National Flood Insurance Program. The only viable option for the City at this time appears to be taking expeditious action to get the levees certified for 100-year flood protection, including any related actions such as training levees, control mechanisms to move water north to overbank flow paths through farmland areas, ensuring Gages Slough is protected as a flood drainage mechanism and facility, and other measures. This will ensure that the levees are given credit in setting the Base Flood Elevations and that the elevations are reasonably close to the existing condition.
- c. With certified levees, flood insurance may become optional in some locations. The City of Burlington will continue to strongly support the flood insurance program.
- d. This action must be taken to protect the interests of the public, in the midst of grave uncertainty and controversy over what constitutes the 100-year flood hydrology and what the 100-year Base Flood Elevations should be in Burlington and the Skagit River delta area.
- e. The financial impact to individual property owners of skyrocketing flood insurance rates that will never provide full coverage, combined with the extreme disparity in mandatory building elevations that will result if flood elevations are increased by what amounts to an entire story, are key components in the decision of the City Council to partner with Dike District #12 and Skagit County to take local control of the future of the community.

There are three significant problems and one good option for Burlington:

1. Hydrology assumptions and computer modeling provided by the Corps of Engineers to FEMA combine to raise Base Flood Elevations even higher than the significant increases that will be seen with the correct analysis.
2. Base Flood Elevation increases of up to 6.4 feet will have a severe negative impact on economic development in this community, and have significant ramifications for the future of much of Skagit County, over a period of time.
3. FEMA has also proposed creation of a Regulatory Floodway at some point in time after the Base Flood Elevations are put in place. It is the City's position that the Regulatory Floodway issue must be considered together with the Base Flood Elevations and the correct hydrology and hydraulic modeling, so that cumulative effects can be evaluated and a responsible course of action can be selected.

Given the uncertainties with points 1-3 above, it is therefore the City's position that the best option for Burlington is to devise a plan to obtain 100-year levee certification for the Burlington Urban Area, and update the existing Special Flood Risk Zones as a comparable alternative to a classic regulatory floodway that is specifically designed to work in the Skagit River delta area.

The lead agencies have identified the following areas for discussion in the EIS:

1. Impact of 100-year flood protection on Burlington and surrounding areas, including analysis of levee height, levee configuration and other flood control measures, and design options for those measures, based on a comparison of Corps of Engineers versus Pacific International Engineering hydrology alternatives and assumptions about Baker Dam storage, Nookachamps storage with Sedro-Woolley protection, control structures in the Sterling area, overbank flow paths to the north and west, and levee setbacks through the bridge corridor.
2. Impact of alternative UGA designs:
 - a. Emphasis on environmental mitigation such as riparian buffer enhancement, wetland buffer restoration, connected open space for habitat improvements and public access.
 - b. Impact of removal of land on the northeast from the UGA and adding land on the west for the school district.
 - c. Consideration of sanitary sewer service to the Raspberry Ridge development that is high density farmworker housing on septic tanks.
3. Alternatives that meet the project objectives and/or mitigate environmental impacts.

SUMMARY

The proposed action is to construct 100-year certified levees in appropriate locations, and provide other flood measures as necessary and appropriate based on FEMA's final Flood Insurance Study, when this study is adopted following resolution of any appeals.

There are two major alternatives presented: one is to modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the hydrology developed for Skagit County, Burlington and Mount Vernon by Pacific International Engineering that is not currently accepted by the Army Corps of Engineers. At present it is not known if FEMA will accredit levees certified using this hydrology. The other major alternative is to modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the Army Corps of Engineers hydrology, if that becomes the basis for the new FIRM maps, and to evaluate options within that framework.

This project consists of several related actions implementing the 2008-2013 update of the Burlington Floodplain Management and Natural Hazard Mitigation Plan.

1. The updated plan adds the flood hazard mitigation strategy of designing and building certified levees at appropriate locations near the City of Burlington, and providing other appropriate flood control measures to protect the City's urban area. This action may result in some or all of Burlington's urban area being removed from the 100-year floodplain, and/or reduced Base Flood Elevations in some or all of Burlington's urban area; however, flood insurance will continue to be promoted.
2. Levee upgrades require coordinating with Dike District #12 and Skagit County on the location of levees and control structures. In order to protect the urban area, some of these will of necessity be constructed in Skagit County's rural jurisdiction in.
3. Modify the UGA for the City of Burlington to implement flood hazard mitigation measures including but not limited to the restoration of the Gages Slough wetland corridor with native plant buffer restoration projects, water quality improvements through source control with Low Impact Design standards, designing an urban separator along Pulver Road, and connecting open space from Gages Slough to the riparian corridor along the Skagit River in conjunction with the planned setback levees in the three-bridge corridor. The proposal is to add the three sites identified in the 2005 Comprehensive Plan, straightening out the very irregular UGA boundary on the west side of Burlington to line up with Pulver Road to a point north of the intersection of Peterson Road and Pulver Road, that would represent an extension of West Fairhaven Avenue.
 - Land added to the UGA at the northwest corner of Burlington is proposed for a future school site. In order to comply with the Skagit County policy of "no net loss" of land that is zoned Agricultural Resource Land, a comparable amount of farmland is proposed to be removed from the northeast corner of the Burlington UGA just east of Burlington Hill.

- The remainder of the agricultural resource land added to the UGA will be used as a sending zone for farmland development rights under the Burlington Transfer of Development Rights standards or for the purchase of development rights using funds raised by the Burlington Agricultural Heritage Credit program.
 - Implement the adopted Burlington Connected Open Space Plan with a diverse array of riparian buffer upgrades, wetland buffer restoration projects, and related native vegetation enhancement opportunities and corridors that are appropriate for protecting and enhancing habitat.
4. Add the existing Raspberry Ridge high density urban farmworker housing project to the UGA to get the site on sanitary sewer to prevent sewage from flooding the City in the event of failure of the septic systems during high water. The site could retain zoning comparable to the existing Agriculture Natural Resource zoning in Skagit County as needed to adhere to the current no net loss of farmland policy in Skagit County. This area includes the land along the Skagit River east of Gardner Road that is owned by the City of Burlington and consists of a forested riparian buffer on the riverside of the levee.
 5. Amend the Zoning Code to include the Burlington Agricultural Heritage Credit program and fee structure. Amendments to Skagit County Code may also be required to facilitate the purchase and/or transfer of development rights from land in the unincorporated UGA to land within the City limits.

OBJECTIVES OF THE PROPOSAL

The objectives of the proposal are as follows:

- ◆ Focus on the long term best interests of the City of Burlington in a regional context.
- ◆ Design and implement a program for levee certification along the Skagit River frontage to mitigate significant adverse effects on the City of flood hazard, through an extensive public involvement process, and in coordination with all affected jurisdictions, including Mount Vernon, Skagit County, Sedro-Woolley and all of the Dike Districts in the Skagit River delta area.
- ◆ Work with private property owners and Skagit County to assist in efforts to permanently preserve farmland around Burlington to reserve overbank flow paths in the event of a major flood. New residential development in Burlington would be required to participate in the Burlington Agricultural Heritage Credit program, and funds raised would be donated to the Skagit Farmland Legacy program to target acquisition of farmland development rights around Burlington.
- ◆ Work to ensure that the most accurate hydraulics and hydrology form the basis for the most accurate computer modeling that generates the new Base Flood Elevations, so that the levee elevations and freeboard are correct for 100-year certified levees. This includes pursuing technical appeals of proposed FEMA maps as necessary.
- ◆ Work with all affected local districts and jurisdictions to develop reasonable flood hazard mitigation measures that work for the region, such as additional flood storage behind Baker Dams, Nookachamps drainage basin storage with Sedro-Woolley sewer plant

protection, overbank flow paths to the north and west, and levee setbacks through the bridge corridor.

- ◆ Revise the existing FEMA approved alternate to the regulatory floodway to clarify the role of Gages Slough, to add overbank flow paths that include the Nookachamps drainage basin and farmland located to the north and west of Burlington Hill.
- ◆ Evaluate the impact of alternative UGA configurations, with removal of land on the northeast and adding land on the west, including consideration of Raspberry Ridge development, with two goals: long term school sites and public health and safety.
- ◆ Develop and implement reasonable and prudent alternatives such as those presented in the NPDES Phase II Municipal Stormwater permit, Burlington Connected Open Space Plan, the Gages Slough Management Plan and related alternative future concepts, to comply with all local, state and federal environmental requirements, including the Endangered Species Act.
- ◆ Consider other alternatives that meet the project objectives and/or mitigate environmental impacts.
- ◆ Address the unresolved national and state environmental policy issues, including the requirement for NEPA review of the change in the FEMA Levee Failure Policy., FEMA has taken the position that the agreement reached in 1985 when the Flood Insurance Rate Maps were first set up in the Skagit River Delta Area is no longer valid. At that time, there was no regulatory floodway established because it is not practical in this situation and the levees were assumed to fail at a single point. Today, FEMA is stating that if the levees are not certified to 100-year flood protection, they are assumed not to exist at all for the purpose of setting base flood elevations. Rather than consider the issues together, FEMA is also proposing to establish a classic regulatory floodway through the Skagit River delta area at an unknown future date.

MAJOR CONCLUSIONS AND SIGNIFICANT AREAS OF CONTROVERSY AND UNCERTAINTY

There is little debate about the need to protect existing developed urban areas from flooding. However, there is a great debate about what constitutes 100-year flood protection and how much water arrives in the Skagit River delta in that flood event. It is expected that this debate will escalate once FEMA makes a decision on flood hydrology, and produces new Flood Insurance Rate Maps. The City of Burlington and Dike District #12 are prepared to file technical appeals if necessary. Extensive levee enlargement work has been in process since 1990 by Dike District #12. With correct flood hydrology in place, the feasibility of obtaining 100-year levee certification would be improved. The process involves certification by a private consultant with review and accreditation by FEMA. This is a recent change from past practice, with substantially less direct federal involvement in the process.

Land Use – There is a clear need for permanent acquisition of farmland development rights to provide paths for floodwaters to move during a major flood event. This option is critical to protect Burlington from becoming a regulatory floodway.

Environmental Quality - If the City's recommendations for a plan of action that mitigates urban flooding through levee system upgrades is not feasible or practical, and Base Flood Elevations

are substantially increased, there will be significant adverse impacts on the future growth and development of the City, aesthetic and economic impacts on local property owners, and the quality of the human environment will suffer. The opportunity to improve and protect fish and wildlife species and habitats arise with the program for levee certification and connected open space design and enhancement.

Floodway or “Floodway-like Tool” – Gages Slough is currently identified as a Special Flood Risk Area with some, but not all, of the restrictions that would be in place if it were designated as a floodway; however, Gages Slough cannot carry enough water to be considered a floodway conveyance area. The Skagit River, from a point three hundred feet behind the landward toe of the levees across the river, is considered a Special Flood Risk Area and the typical floodway rules apply in this area. The proposed addition to the program is to protect farmland that will provide overbank flow paths, the actual course of floodwaters in a flood event. FEMA is proposing to establish a floodway or floodway-like tool, but there is no information or schedule for this action and it needs to be considered together with the Base Flood Elevations, and the proposals outlined in this document.

Further Study - If the flood hazard mitigation issues for the City of Burlington cannot be solved, further study will be necessary, and there will be significant adverse effects that cannot be mitigated. These include gradual deterioration of the city and loss of economic vitality, loss of protection of major regional transportation infrastructure, inability to continue with ecosystem restoration efforts and continued poor storm water quality entering the Skagit River, as examples.

SIGNIFICANT IMPACTS, MITIGATION MEASURES, AND SIGNIFICANT UNAVOIDABLE ADVERSE IMPACTS

This is a programmatic environmental impact statement intended to address planning issues related to flood hazard mitigation including levee certification. The typical environmental impacts of site preparation and construction are addressed by the existing land use and construction codes and are not considered significant adverse effects and they will be adequately mitigated. Supplemental environmental assessments ranging from biological assessments and evaluations to discipline reports pursuant to NEPA will be incorporated into the program as they become available or required.

With certified levees and a committed plan for farmland and open space preservation and restoration, with a defined urban separator, there will be long term stability in the character of the area around the existing City limits.

Continued increase in commercial activity and residential density will occur, but it will be confined to the existing urbanized area.

There will be an unavoidable adverse impact on frequently flooded farmland and rural residential areas that are located in overbank flow areas when flooding occurs. This is an existing condition.

Levee certification may result in more water moving down the river past Burlington, with potential impacts to rural and agricultural lands if there is levee overtopping or failure downstream.

With respect to fish and wildlife, benefits include a range of programs and projects, including but not limited to stormwater cleanup, wetland buffer restoration, riparian habitat enhancement, levee setbacks and connected open space.

Mitigation measures include the restoration of the Gages Slough Habitat corridor through Burlington, providing clean water, a wetland buffer, and habitat for birds and small animals.

Levee setbacks are planned through the three-bridge corridor on the south side of Burlington. The setback area will be maintained as part of the Burlington Connected Open Space, affording new potential opportunities for public access, buffer enhancement, and flood hazard mitigation, all of which will benefit fish and wildlife and their habitats. Preliminary study with regard to the three-bridge corridor has identified the 100-year old BNSF railroad bridge, at the upstream end of the corridor, as a restriction to flood conveyance.

Additional studies will be prepared as part of the request for levee certification, addressing issues of environmental justice and archeology and historic preservation and completing the Endangered Species Act consultation process.

ALTERNATIVES INCLUDING THE PROPOSED ACTION

The purpose of including a discussion of alternatives is to inform decision-makers and the public of reasonable alternatives, including mitigation measures that would avoid or minimize adverse impacts or enhance environmental quality.

1. Proposed Action – *The proposed action is to construct 100-year certified levees in appropriate locations, and provide other flood measures as necessary and appropriate based on FEMA’s final Flood Insurance Study, when this study is adopted following resolution of any appeals.*

There are two major alternatives presented: one is to modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the hydrology developed for Skagit County, Burlington and Mount Vernon by Pacific International Engineering that is not presently accepted by the Army Corps of Engineers. At present it is not known if FEMA will accredit levees certified using this hydrology. The other major alternative is to modify existing levees, including certification of some levee segments, and take other appropriate flood control measures based on the Army Corps of Engineers hydrology, if that becomes the basis for the new FIRM maps, and to evaluate options within that framework.

(see table on next page)

Technical Report	Regulated 100-year peak flow estimate (how much water gets here)	Effects on upstream water levels	Effects on downstream measures	Effect on base flood elevations in Burlington
Corps of Engineers	215,270 cfs at Sedro-Woolley, Highway 9 Bridge	May raise upstream surface water levels 1-4 feet, depending on how much water downstream constrictions such as the BNSF bridge and the levees hold back	Overtopping or control structures critical Levee certification may not be feasible at all without ring dike and then adverse effects cascade both upstream and downstream	Up to 7 feet increase; generally, between 3 and 7 feet throughout the City No plausible scenario of levee improvements without significant detrimental impacts to upstream and downstream neighbors
Pacific International Engineering	184,700 cfs at Sedro-Woolley, Highway 9 Bridge	Minimal effect depending on levee configuration; less than 3 inches	Levee certification along river front feasible Levee setbacks and habitat improvement feasible Flood insurance still needed most places	Up to 6 feet increase; generally between 2 and 6 feet throughout the City BFE's near status quo if levee segment is certified; parts of town out of floodplain
FEMA review results	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN

Consultant	Unregulated Peak Flow Input Data Points				
	<u>1897</u>	<u>1909</u>	<u>1917</u>	<u>1921</u>	<u>1932</u>
Corps of Engineers	265,000	245,000	210,000	228,000	182,000
Northwest Hydraulic Consultants	220,000	205,000	185,000	195,000	182,000
Pacific International Engineering	181,200	179,000	158,700	169,700	165,000

Consultant	100-Year Regulated Peak Flow Estimate		
	Concrete	Sedro-Woolley	Mount Vernon
Corps of Engineers	209,490	215,270	192,900
Northwest Hydraulic Consultants	191,400	196,690	176,250
Pacific International Engineering	184,400	184,700	162,200

1. Running the Flo-2 D computer model with the levees as they are today, a significant volume of water never gets to the RR bridge; the Nookachamps fills, Sterling area fills, and water overtops the RR in the Sterling area, heading north and then west to the farmland. At some point, when the bridge corridor is at maximum capacity, levee failure or overtopping occurs at one of several locations; Avon Bend, Riverbend, Fir Island are examples.
2. Running the model with the FEMA levee failure policy in place yields different results depending on the assumption of how much water gets to Burlington, but even with the lower numbers supported by the City, Base Flood Elevations go up significantly within the City limits and future development and redevelopment will be costly and aesthetically displeasing and function poorly. Levee certification is the only way to get credit for having levees at all in setting the Base Flood Elevations.

This project consists of several related actions implementing the 2008-2013 update of the Burlington Floodplain Management and Natural Hazard Mitigation Plan.

1. *The updated plan adds the flood hazard mitigation strategy of designing and building certified levees at appropriate locations near the City of Burlington, and providing other appropriate flood control measures to protect the City of Burlington's urban area. This action may result in some or all of Burlington's urban area being removed from the 100-year floodplain, and/or reduced Base Flood Elevations in some or all of Burlington's urban area; however, flood insurance will continue to be promoted.*
2. *Levee upgrades require coordinating with Dike District #12 and Skagit County on the location of levees and control structures. In order to protect the urban area some of these will of necessity be constructed in Skagit County's rural jurisdiction.*
3. *Modify the UGA for the City of Burlington to implement flood hazard mitigation measures including the restoration of the Gages Slough wetland corridor with native plant buffer restoration projects, water quality improvements through source control with Low Impact Design standards, designing an urban separator along Pulver Road, and connecting open space from Gages Slough to the riparian corridor along the Skagit River in conjunction with the planned setback levees in the three-bridge corridor. The proposal is to add the three sites identified in the 2005 Comprehensive Plan, straightening out the very irregular UGA boundary on the west side of Burlington to line up with Pulver Road to a point north of the intersection of Peterson Road and Pulver Road, that would represent an extension of West Fairhaven Avenue.*
 - *Land added to the UGA at the northwest corner of Burlington is proposed for a future school site. In order to comply with the Skagit County policy of "no net loss" of land that is zoned Agricultural Resource Land, a comparable amount of farmland is proposed to be removed from the northeast corner of the Burlington UGA just east of Burlington Hill.*
 - *The remainder of the agricultural resource land added to the UGA will be used as a sending zone for farmland development rights under the Burlington Transfer of Development Rights standards or for the purchase of development rights using funds raised by the Burlington Agricultural Heritage Credit program.*
 - *Implement the adopted Burlington Connected Open Space Plan with a diverse array of riparian buffer upgrades, wetland buffer restoration projects, and related native*

vegetation enhancement opportunities and corridors that are appropriate for protecting and enhancing habitat.

- 4. Add the existing Raspberry Ridge high density farmworker housing project to the UGA to get the site on sanitary sewer to prevent sewage from flooding the City in the event of failure of the septic systems during high water. It could retain zoning comparable to the existing Agriculture Natural Resource zoning in Skagit County as needed to adhere to the current no net loss of farmland policy in Skagit County. This area includes the land west of Gardner Road that is owned by the City of Burlington and consists of a forested riparian buffer on the riverside of the levee.*
- 5. Amend the Zoning Code to include the Burlington Agricultural Heritage Credit program and fee structure. Amendments to Skagit County Code may also be required to facilitate the purchase and/or transfer of development rights from land in the unincorporated UGA to land within the City limits.*

Discussion:

The proposed action is designed to reflect the unique location of Burlington in the Skagit River delta area with the river on two sides, Gages Slough diagonally crossing the City, major state and interstate transportation corridors (both highways and railroads) running north-south and east-west, combined with agricultural resource land of long term significance to the north and west. The goal is to make the best of the situation for all parties, focus on public health, safety, welfare and the character of the area, and protect the long term interests of the community and the region with an effective and practical combination of measures.

Fortunately for Burlington, the Dike District #12 has been focused on protecting the interests of the citizens they serve and working on the ground to upgrade the levee system. There has been an excellent supply of acceptable fill material available since the project began after the 1995 flood event, and the levee system upgrade is designed as an overtopping levee with wide top and long backslope. The current levee profile is generally higher than the 1979 Corps of Engineers 100-year water surface elevation. To gain the required three feet of freeboard under any hydrology and hydraulic scenario that is currently on the table, a range of between two and five feet of additional levee height will be required. With the wide levee top and long backslope profile, there is ample space for additional material. Many of the technical considerations for levee design identified in the Corps' Levee Design Manual are addressed by this design.

Burlington is ready to make its case to get credit for the levee system in the establishment of Base Flood Elevations. While "No Action" may continue in the region into the indefinite future, Burlington is simply asking for good data to finalize the levee profiles, complete the work, get a clear understanding from FEMA on the specific submittals required to document the case for levee certification by a registered professional engineer, and file for Map Revisions.

2. No Action

The current General Investigation study has been underway for many years by the County and the Corps of Engineers, and will continue for several years to come. Doing nothing will result in mandatory adoption of higher Base Flood Elevations that may show up to 6.4 feet increase in height in some locations in Burlington. This presents an extremely difficult challenge to Burlington's future economic stability and for the future development of vacant and underutilized land in the City, and may preclude the redevelopment of historic downtown Burlington with its 30-foot wide lots.

No action will continue to generate extremely high flood insurance premiums for the families that live in the community. While the existing buildings will be "grandfathered in", according to FEMA, citizens have already been hit hard with much higher rates for existing conditions when mortgage lenders get involved at the time of sale or refinancing. Crawl spaces are often reclassified as basements, and if insurance carriers are changed, the policy is no longer subject to the original lower rates.

Discussion:

Under this alternative, the community will participate in the on-going exercise, action will be delayed, Base Flood Elevations will increase when the FEMA maps are produced, flood insurance premiums will increase, possibly substantially, and investment in economic development will nearly cease, particularly the revitalization of historic downtown Burlington and infill development in the retail core and industrial areas. Without levee certification, the potential for overtopping and widespread contamination is very great, particularly when combined with the potential for establishing a regulatory floodway through the Skagit River delta area.

3. Remove approximately 30 acres of land from the Urban Growth Area and exchange for land located at the northeast corner of Pulver and Peterson Road for a school site.

Land currently in the UGA will be returned to agricultural resource zoning and the school site will be redesignated as UGA, from its agricultural zoning classification. Adjacent farmland development rights will be acquired and a permanent urban separator designed along the boundaries of the site, coordinated with the adopted Connected Open Space Plan for Burlington.

Discussion:

See Appendix C, Exhibit 3 for a map that illustrates the proposal. Long term growth in the Burlington-Edison School District population means that two new school sites are needed for the long term future. With the policy of no net loss of farmland in mind, a swap of land from one side of the UGA to the other is proposed.

4. Evaluate the concept of adding Raspberry Ridge to the UGA so that sanitary sewer is provided to mitigate potential health hazard in event of a flood.

This area is proposed to be added to the Burlington UGA and zoned as Open Space in order to be able to provide sanitary sewer to the high density farmworker housing that has been constructed on the site. The site is currently zoned as Agricultural Natural Resource Land (Ag-NRL). The goal is to protect the citizens of Burlington from contamination by sewage from failed septic systems in the event of a flood. This area was proposed to be included as a sending zone for farmland development rights under the transfer/purchase of development rights provisions adopted in the Burlington Zoning Code in 1994. However, this proposal was rejected by Skagit County at that time.

Discussion:

See Appendix C, Exhibit 3 for a map that illustrates the proposal. Today, all of the land in this area has been taken from long term agricultural resource use and high density housing has been constructed by Skagit County with very large septic systems and drainfields. The likelihood of failure in a flood event with high water table is high and this area needs to be connected to sanitary sewer.

AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS AND MITIGATION MEASURES

Comparative Impacts of Alternatives	Alternative #1 – Proposed Action 100-yr levees + preserve farmland + modified floodway	Alternative #2 – No Action-study	Alternative #3 – land swap for school site	Alternative #4 – Sanitary sewer to farm worker housing
Does it meet applicant's objectives?	Yes	No	Yes	Yes
Mitigate flood hazard	Yes	Unknown & unlikely	No net change	Yes
Viable future community	Yes	No	Yes	Yes
Enhance Wild and Scenic River	Yes	No	No net change	No net change

AFFECTED ENVIRONMENT, SIGNIFICANT IMPACTS AND MITIGATION MEASURES

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage or release of toxic or hazardous substances; or production of noise?

The recent amendment of the Flood Hazard Mitigation Plan to add the goal of 100-year flood protection, combined with an update of the existing alternative regulatory floodway program and playing a role in other regional flood hazard mitigation components, will allow the existing community within the current UGA/ City limits to continue to thrive as a small city. As stated in the 2008-2013 Floodplain Management and Natural Hazard Mitigation Plan, page 39, there is an available supply of 222 acres of commercial and industrial land within the City limits of Burlington, out of a total of 1,349 acres, and there are 80 acres of vacant residential land located primarily on Burlington Hill. Infill and redevelopment will be the primary activities that will affect the environment. Levee upgrades will have a temporary impact on air quality and noise during construction.

Proposed measures to avoid or reduce such increases are:

All new development shall comply with all federal state and local regulations including the Critical Areas Ordinance, federal and state air and water quality standards, state noise standards and other applicable laws and regulations. Green development principles, state of the art surface water management, low impact infrastructure design, and sustainable development techniques are proposed to be integrated into codes and plans for design and construction. Following participation in a state Technical Assistance program, an Interim Low Impact Design Code is in process for adoption for a trial period so that code language can be improved after practice in the field.

2. How would the proposal be likely to affect plants, animals, fish or marine life?

The proposal for levee certification and maintenance of floodway-like open space components is expected to have no adverse effect on fish or wildlife or their habitats. While new development including infill and redevelopment is part of the future of the City, in addition to using environmentally sound practices, a major component of the project is restoration, maintenance and management of the Gages Slough habitat and wetland corridor and other surface waters and outfall locations to meet or exceed state and federal clean water standards.

Proposed measures to protect or conserve energy and natural resources are:

The Skagit River is home to threatened and endangered species of fish, such as Chinook salmon, native steelhead, and bull trout, as well as the bald eagle. The overall program of surface water quality management, habitat and buffer restoration and maintenance of floodway-like open space components is a unique mitigation opportunity and no adverse effects are expected. This plan will benefit listed and priority habitats and species. Part of the proposal includes levee setbacks and connected open space with additional mitigation opportunities for listed and priority species and habitat.

Additional biological evaluation and assessment work will be completed for implementation of the plan, including the application for Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR), with any supplemental documentation, consultation and determinations required.

3. How would the proposal be likely to deplete energy or natural resources?

All development uses energy and natural resources. Part of this proposed action is Gages Slough restoration, maintenance and habitat management which is a major turnaround opportunity to restore critical habitat and natural resources. While not on the main stem of the Skagit River, there is substantial migratory bird use, as well as other habitat.

This proposed action protects and permanently conserves farm land in the agricultural natural resource designation and that is a significant opportunity to preserve natural resources.

Proposed measures to protect or conserve energy and natural resources are:

The project has a specific goal of natural resource conservation, including acquisition of farmland development rights through the Skagit County Farmland Legacy, funded by the Burlington Agricultural Heritage Program (See Appendix E).

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for government protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

The proposal is a Flood Hazard Mitigation project to provide protection to a finite existing urban area, while completely extinguishing development rights from prime farmland that also provide overbank flow paths for flood hazard mitigation, restore and maintain the Gages Slough wetland corridor, implement, monitor and manage water quality improvement programs so that clean water reaches the Skagit River which is designated critical habitat for several species of listed salmonids.

By this means, through a cooperative effort representing the interests of fish and wildlife habitat, wetlands, floodplains, and threatened or endangered species habitat, farmland preservation, opportunities for improvements in sensitive areas will be optimized for future generations, while protecting the lives of the existing community now in the floodplain.

Proposed measures to protect such resources or to avoid or reduce impacts are:

Adopt effective codes to regulate development over the years; monitor the ecosystems in the area and manage restoration planning and implementation in a cooperative venture among interested parties with future generations in mind. Strong maintenance and management action plans are critical to long term viability and they must be adequately funded and monitored.

Additional biological evaluation and assessment work will be completed for implementation of the plan, including the application for Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR), with any supplemental documentation, consultation and determinations required.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

This plan will protect and maintain substantial connected open space through and around the urban area, while providing levee certification around the urban area, and will retain rural and agricultural uses in perpetuity in protected agricultural resource lands where there will continue to be less than 100-year levee protection and urban development will not be allowed. This program is consistent with existing land and shoreline use plans in place.

Proposed measures to avoid or reduce shoreline and land use impacts:

This plan should accomplish the goal of reducing impacts.

6. How would the proposal be likely to increase demands on transportation or public service and utilities?

There will be a minor increase in population and business activity within the urban area.

Proposed measures to reduce or respond to such demand(s) are:

The plan and code addresses this issue by establishing a Level of Service and concurrency requirements.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The plan is consistent with requirements for protection of the environment.

8. Earth

Appendix F describes the Levee certification and accreditation process. Geotechnical reports are required to be developed and filed as part of the application for map revision. The scope of the reports needed for levee modifications will be determined in cooperation with the Dike District Commissioners, the Public Works Department, a Registered Professional Engineer, a Geotechnical Engineer and FEMA.

9. Air

Levee vegetation is intended to reduce dust and airborne particulates. Construction emissions are a temporary, unavoidable adverse effect. Dust control is used during the dry season.

10. Water

- *Long term improvement of surface water quality is an important goal. Storm water quality monitoring and management through a long range plan to implement the NPDES Phase II storm water program is in place.*
- *Drinking water supply is managed by the PUD #1.*
- *The Burlington Wastewater Treatment Plant uses ultraviolet light for disinfection and has a major pretreatment program in place to exceed water quality standards for effluent.*
- *Protection of the urban area from flooding, while providing overbank flow paths for floodwaters should help protect water quality from hazardous waste, septage, and other industrial hazards.*

11. Plants

There are no known threatened or endangered plants in the area. A component of the project is buffer restoration with native plants in the Gages Slough area. There are very restrictive standards for management of levee vegetation to protect the integrity of the levee system. The installation of setback levees may afford greater opportunities for shoreline plants in the riparian corridor along the river.

12. Animals

The Skagit River is home to several species of threatened or endangered fish, including salmon, steelhead and bull trout. The bald eagle is also found in the area, along with many other birds, mammals and other animals. Buffer restoration and enhancement and upgrading the environmental qualities of the Gages Slough corridor are positive for animals.

13. Energy and Natural Resources

Protecting property, protecting the environment and ensuring that there is long term ability for passage of floodwaters through protected open space will conserve both energy and natural resources.

14. Environmental Health

Protection of the urban area from flooding will directly benefit environmental health by preventing from potential contamination by a variety of sources.

15. Land and Shoreline Use

Preservation of farmland in open space, maintaining the existing urban area with no potential for future expansion into floodplains and farmland, improving and cleaning up habitat in the wetland corridor, and setting back levees are all actions that are positive for land and shoreline use. Levee modification to provide for overtopping, instead of potential failure, increases protection for the existing land use.

16. Housing

Protecting the ability of the citizens to be able to afford flood insurance in conjunction with home mortgages is critical for the working families of Burlington. In addition, infill housing needs to fit into the character of the neighborhoods at the same Base Flood Elevations as the other homes in Burlington. New higher density housing that is planned for the redevelopment of downtown and may occur in the retail core needs to be affordable market rate. This means reasonable elevations are necessary without the need for fill or parking garages on the ground floor.

17. Aesthetics

The design and development of the existing urban area will be able to proceed and preserve the character of the community. Some significant historical structures will be protected in context, and new construction will be in keeping with the historical and existing community character of the area. Preserving farmland in open space will protect the aesthetics of the Skagit Valley for future generations.

18. Light and Glare

Limiting the expansion of the urban area to the land protected by certified levees, and protecting farmland around the perimeter, will help keep excess light at night to current levels.

19. Recreation

Access to Gages Slough and the Skagit River for fishing, bird watching, and fish viewing will be enhanced as restoration projects proceed over the years ahead. Connected open space in the setback levee area will be accessed by paths and sidewalks as appropriate. Local parks in the Gages Slough corridor and along the Skagit River function to protect flood hazard areas and provide recreational opportunities. Where protection of priority habitats and species is needed, public access will be restricted to specific viewing locations without direct access.

20. Historic and Cultural Preservation

Cultural and historic resources will be evaluated for each element of the project and appropriate action taken if archeological sites are identified. Preserving Burlington's history is directly linked to being able to build at reasonable Base Flood Elevations. Historic Burlington has 30-foot wide lots and infill development needs to be at the same elevation as the existing buildings.

21. Transportation

State Route 20, Interstate 5 and the BNSF Railroad all intersect in Burlington. Protecting these critical infrastructure components is a key goal of the levee certification program. The first project designed to protect Interstate 5 (the three-bridge corridor levee setback and certification project) is currently in the process of NEPA review.

22. Public Services

Levee certification decreases the need for on the ground flood fighting. This has already been the experience in the 2003 and 2006 flood events with the current levee improvements in place, allowing emergency resources to provide assistance to others.

23. Utilities

Protecting utilities and infrastructure with an adequate levee system ensures that vital services are available.

APPENDICES

NOTE: Attachments for Appendices are in three separate attachments as follows:

- ▶ **Appendices A – C**
- ▶ **Appendices D – G**
- ▶ **Appendices H – J**

APPENDIX A

City of Burlington 2008-2013 Floodplain Management and Natural Hazard Mitigation Plan

and

2008-2013 Skagit County Natural Hazard Mitigation Plan

Available via the following weblink:

<http://www.skagitcounty.net/Common/asp/default.asp?d=EmergencyManagement&c=General&p=2003NHMPFinaltoc.htm>

APPENDIX B

Current studies on Hydrology and Hydraulics

1. Skagit River Basin Hydrology Report Existing Conditions prepared by Pacific International Engineering, October 2008
2. Skagit River Basin, Washington Revised Flood Insurance Study Hydrology Summary Draft, May 2008, U.S. Army Corps of Engineers for Federal Emergency Management Agency
3. Skagit River Basin, Washington Revised Flood Insurance Study Hydraulics Summary, May 2008, U.S. Army Corps of Engineers for Federal Emergency Management Agency
4. Re-evaluation of the Magnitude of Historic Floods on the Skagit River near Concrete, Final Report October 2008, Northwest Hydraulics Consultants for Skagit County Department of Public Works
5. Skagit River Flood Elevations and Flood Frequency Data presentation for NORMFA meeting 2008 by Chal Martin, P.E. and Albert Liou, P.E.
6. Microscopical Studies of Concrete WA Historical Flood Investigation by WJE Associates, Inc.

APPENDIX C

Background Reports

APPENDIX D

Maps

Exhibit 1 – Skagit River and Tributaries Basin Map

Exhibit 2 – Vicinity Map showing levee system

Exhibit 3 – Urban Growth Area Map from 2005 Comprehensive Plan

Exhibit 4 – Map showing Alternative 3 with proposed changes to Urban Growth Area to add new school site, remove comparable acreage from the Urban Growth Area at the northeast corner adjacent to Peacock Lane; and Alternative 4, adding Raspberry Ridge as Open Space so that sanitary sewer can be made available.

Exhibit 5 – Special Flood Risk Map with Gages Slough & Open Space

Exhibit 6 – Overbank Flow Paths, FEMA Levee Failure Policy with no levee credit, Levee segment corrected hydrology, Certified Levee Options

APPENDIX E

Project Description for Farmland Preservation through Burlington Agricultural Heritage Credit Program

APPENDIX F

Distribution List

APPENDIX G

Overview of Burlington's flood hazard mitigation program as it relates to the Corps of Engineers Measures List, and the need for a realistic approach to the Skagit River Comprehensive Flood Hazard Management Plan update

APPENDIX H

- **Background Report - Dike District #12**
- **Levee Plan and Profile Existing Conditions as of December 2007**
- **Aerial Photos keyed to each Plan Sheet**
- **Burlington Levee Certification Project Overview**
- **FEMA Fact Sheet Requirements of 44 CFR Section 65.10**
- **44 CFR Section 65.10**
- **Joint Resolution 01-2007**
- **Interlocal Agreement between Burlington and Dike District #12
– Preliminary Work for Levee Certification**

APPENDIX I

- **Environmental Information and Scope of Future Environmental Phases**
- **Summary of scoping meeting**
 1. **Upper Skagit Fisheries**
 2. **Skagit System Cooperative**
 3. **FEMA Environmental Review and NOAA Fisheries**
- **Washington State Department of Fish and Wildlife Priority Habitats and Species information**
- **Endangered Species Act – Section 7 Consultation Final Biological Opinion And Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation including correspondence from FEMA and Burlington Response**
- **FEMA requirements for Conditional Letter of Map Revision including Archeology and Historic Preservation**

APPENDIX J

Comment Letters Received to Date with Response