

*"Making a difference through excellence of service"*



## **CITY OF WARRENTON**

### **AGENDA**

CITY COMMISSION OF THE CITY OF WARRENTON  
REGULAR MEETING  
May 10, 2016 – 6:00 P.M.  
Warrenton City Commission Chambers – 225 South Main Avenue  
Warrenton, Or 97146

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1. **CALL TO ORDER**

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL**

4. **COMMISSIONER COMMENTS/COMMUNICATIONS/AGENDA ADDITIONS**

Proclamation – National Police Week – May 15 – 21, 2016

Proclamation – Emergency Medical Services Week – May 15 – 21, 2016

5. **CONSENT CALENDAR**

A. Commission Regular Meeting Minutes – 4.26.16

B. Warrenton Community Center Advisory Board Minutes – 2.18.16

Items on the Consent Calendar have previously been discussed and/or are considered routine. Approval of the Consent Calendar requires a motion, a second, and no discussion, unless requested by a member of the City Commission.

6. **BUSINESS ITEMS**

A. Consideration of Memorandum of Understanding with CREST and the Skipanon Water District

B. Consideration of 2<sup>nd</sup> Reading and Adoption of Ordinance No. 1202A; Adding Chapter 1.18 to the Warrenton Municipal Code – Initiatives & Referendums

C. Consideration of 2<sup>nd</sup> Reading and Adoption of Ordinance No. 1203A – Repealing Ordinance No. 797A – 1987 - Urban Renewal Agency

7. **PUBLIC COMMENT**

At this time, anyone wishing to address the City Commission concerning items of interest not already on the Agenda may do so. The person addressing the Commission will, when recognized, give his or her name and address for the record. All remarks will be addressed to the whole City Commission and limited to 3 minutes per person. The Commission reserves the right to delay any action, if required, until such time as they are fully informed on a matter.

8. **ADJOURNMENT**

**Warrenton City Hall is accessible to the disabled. If special accommodation is needed, please notify the City Recorder at 503-861-0823, at least 48 hours in advance of the meeting so appropriate assistance can be provided. TDD Users: Please call Oregon Telecommunications relay service at 1-800-735-2900.**

## Proclamation for National Police Week 2016

To recognize National Police Week 2016 and to honor the service and sacrifice of those law enforcement officers killed in the line of duty while protecting our communities and safeguarding our democracy.

**WHEREAS**, there are approximately 900,000 law enforcement officers serving in communities across the United States, including the dedicated members of the Warrenton Police Department;

**WHEREAS**, there have been 15,725 assaults against law enforcement officers in 2014, resulting in approximately 13,824 injuries;

**WHEREAS**, since the first recorded death in 1791, more than 20,000 law enforcement officers in the United States have made the ultimate sacrifice and been killed in the line of duty, including Reserve Officer Robert "Bernie" McMasters of the Warrenton Police Department;

**WHEREAS**, the names of these dedicated public servants are engraved on the walls of the National Law Enforcement Officers Memorial in Washington, D.C.;

**WHEREAS**, 252 new names of fallen heroes are being added to the National Law Enforcement Officers Memorial this spring, including 123 officers killed in 2015 and 129 officers killed in previous years;

**WHEREAS**, the service and sacrifice of all officers killed in the line of duty will be honored during the National Law Enforcement Officers Memorial Fund's 28th Annual Candlelight Vigil, on the evening of May 13, 2016;

**WHEREAS**, the Candlelight Vigil is part of National Police Week, which takes place this year on May 15-21;

**WHEREAS**, May 15 is designated as Peace Officers Memorial Day, in honor of all fallen officers and their families and U.S. flags should be flown at half-staff;

**NOW, THEREFORE, BE IT RESOLVED** that I, Mark Kujala, Mayor of Warrenton, formally designate May 15-21, 2016, as Police Week in the City of Warrenton, and publicly salutes the service of law enforcement officers in our community and in communities across the nation.

**IN WITNESS WHEREOF**, I have herewith set my hand and caused the Seal of the City of Warrenton to be affixed this 10<sup>th</sup> day of April, 2016.

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Mayor

## **PROCLAMATION**

**WHEREAS**, emergency medical services is a vital public service; and

**WHEREAS**, the members of emergency medical services teams are ready to provide lifesaving care to those in need 24 hours a day, seven days a week; and

**WHEREAS**, access to quality emergency care dramatically improves the survival and recovery rate of those who experience sudden illness or injury; and

**WHEREAS**, the emergency medical services system consists of emergency physicians, emergency nurses, emergency medical technicians, paramedics, firefighters, educators, administrators, and others; and

**WHEREAS**, the members of emergency medical services teams, whether career or volunteer, engage in thousands of hours of specialized training and continuing education to enhance their lifesaving skills; and

**WHEREAS**, it is appropriate to recognize the value and the accomplishments of emergency medical service providers by designating Emergency Medical Services Week;

**NOW, THEREFORE, I, MARK KUJALA, MAYOR OF THE CITY OF WARRENTON**, in the State of Oregon, in recognition of this event do hereby proclaim the week of May 15 - 21, 2016, as

### **EMERGENCY MEDICAL SERVICES WEEK**

*With the theme, EMS STRONG: Called to Care.*

I encourage the community to observe this week with appropriate programs, ceremonies, and activities.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the City of Warrenton to be affixed this 10th day of May 2016.

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Mark Kujala, Mayor

MINUTES

Warrenton City Commission  
Regular Meeting - April 26, 2016  
6:00 p.m.

Warrenton City Hall - Commission Chambers  
225 S. Main  
Warrenton, Or 97146

Mayor Mark Kujala called the meeting to order at 6:00 p.m., then led the public in the Pledge of Allegiance.

Commissioners Present: Tom Dyer, Rick Newton, Henry Balensifer, Pam Ackley, Mayor Mark Kujala

Staff Present: City Manager Kurt Fritsch, City Recorder Linda Engbretson, Fire Chief Tim Demers, Finance Director April Clark, Wastewater Treatment Superintendent Kyle Sharpsteen, Police Chief Mathew Workman, Public Works Director James Dunn, Public Works Foreman Craig Walter.

COMMISSIONER COMMENTS

Commissioner Newton -remarked on the article in the previous day's edition of *The Daily Astorian* regarding the housing shortage in the community. He noted the short-term rental controversy, and he commented that the short-term market is another facet of the housing shortage; it impacts the availability for long-term rent.

Commissioner Balensifer - acknowledged City of Warrenton Police Reservists that assisted at the Astoria-Warrenton Crab Festival over the weekend. "Our reservists did an excellent job." Overall, he said, the festival was another successful event. Senator Bonamici's office reached out regarding the Hammond Marina Lease. She visited the City and Commissioner Balensifer reported he gave her a tour; she had not been to the Hammond Marina before. He reported he spoke to Patrick Wingard, N. Coast Regional Representative for the Department of Land and Conservation Development, who indicated there may be state money available to assist in updating the 1981 CREST Mediation Panel Agreements. It's important to consider so any developer that may be interested in the site will know of any development restrictions and be able to have some sort of certainty to move forward.

Commissioner Ackley - stated she toured a "Friends of the Children" facility in Portland. She explained that the organization is a mentoring program for children K - 12<sup>th</sup> grades, breaking the cycle of poverty. She noted the success rate of increasing high school graduation, fewer teen parents, and criminal activity. It's an exciting program, and there is a group looking to start a

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program in Clatsop County. She reported that the Warrenton Grade School 5k run/walk coming up on June 4. Proceeds will go to support school sports programs.

Mayor Kujala - announced an opioid summit is scheduled this week to address opioid abuse in the community. Noting the withdrawal of the Oregon LNG proposed facility in Warrenton, Mayor Kujala thanked City staff for all their work over the past 12 years related to the project. He also thanked fellow Commission members stating "we will turn the page" on LNG; however, he wanted to emphasize that Warrenton welcomes new business. He said OLNG created a lot of controversy in the community. "It just wasn't the right fit."

City Manager Fritsch - introduced James Dunn, newly hired Public Works Director. He stated that Mr. Dunn will be a great asset to the City. Manager Fritsch stated the City was very fortunate to have had former Clatsop County Community Director Ed Wegner step in as Interim Director. He then briefed the Commission on a recent meeting with FEMA regarding levee certification. STARR will seriously look at the City's data claiming errors in STARR's original data. He said it was actually a positive and collaborative meeting. Manager Fritsch stated he will follow up with a memo providing more detail of the meeting.

#### CONSENT CALENDAR

- A. City Commission Regular Meeting Minutes - 4.12.16
- B. City Commission Work Session Meeting Minutes - 4.12.16
- C. Fire Department Activity Report - March 2016
- D. Police Dept. Monthly Statistics Report - March 2016
- E. Marinas Monthly Report - March 2016
- F. Warrenton Parks Advisory Board - October 2015
- G. Finance Dept. Monthly Report - March 2016

**Commissioner Henry Balensifer made the motion to accept the Consent Calendar as presented. Motion was seconded and passed unanimously.**

**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

#### BUSINESS

Mr. Chris Palmer submitted an application for appointment to the Parks Advisory Board. He was introduced to the Commission. Mr. Palmer said he looks forward to being involved on the board.

**Commissioner Henry Balensifer made the motion to appoint Chris Palmer to Position No. 2, on the Warrenton Parks Advisory Board. Motion was seconded and passed unanimously.**

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**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

Fire Chief Tim Demers presented the Intergovernmental Agreement between the City and the Warrenton Rural Fire Protection District to continue fire services for the District through June 30, 2021. The fee the District pays to the City increases by 3% each year.

**Commissioner Henry Balensifer made the motion to authorize the Mayor's signature on the IGA between the City and the Warrenton Rural Fire Protection District for fire protection and emergency medical services through June 30, 2021. Motion was seconded and passed unanimously.**

**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

Police Chief Mathew Workman explained that because the City of Warrenton Police Department does not have a jail facility or holding cells for people arrested for crimes charged through the Warrenton Municipal Court or subsequent warrants, the City needs a Jail Services Agreement with Clatsop County Sheriff's office to temporarily house such individuals. The proposed agreement updates the current agreement which was signed in 2006. Chief Workman noted the agreement proposes a new fee schedule. Daily charges will increase from \$50 to \$100 and \$25 to \$50 for a partial day's confinement. He said it should not have a significant impact on the WPD and Municipal Court budget; most of Warrenton's offenders are "cite and release."

**Commissioner Henry Balensifer made the motion to approve the Jail Services Agreement between Clatsop County and the City of Warrenton and to have the Mayor, City Manager, and City Attorney sign the same. Motion was seconded and passed unanimously.**

**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

Commissioner Balensifer introduced a proposal for the adoption of a "fair voting" ordinance at the April 12, 2016, regular meeting. As discussed, the proposed ordinance is presented for first reading. The ordinance provides that any measure presented to the citizens of Warrenton include a requirement for more than a majority of votes cast by the electorate to approve a change in law or that government action shall become effective only if approved by at least the same percentage of voters specified in the proposed voting requirement. The Oregon Constitution allows local municipalities to set the initiative and referendum process.

**Commissioner Rick Newton made the motion to conduct the first reading, by title only, of Ordinance No. 1202A. Motion was seconded and passed unanimously.**

**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

**Mayor Kujala conducted the first reading by title: Ordinance No. 1202A; Adding Chapter 1.18 to the Warrenton Municipal Code, Initiatives and Referendums.**

City Manager Kurt Fritsch noted a housekeeping measure is needed to repeal the Urban Renewal Agency ordinance adopted in 1986. City Recorder Linda Engbretson explained the ordinance referred the consideration of developing an Urban Renewal District to the voters; however, the measure failed. The ordinance was codified and needs to be repealed.

**Commissioner Pam Ackley made the motion to conduct the first reading, by title only, of Ordinance No. 1203A. Motion was seconded and passed unanimously.**

**Newton - aye; Dyer - aye; Balensifer - aye; Ackley - aye; Kujala - aye.**

**Mayor Mark Kujala conducted the first reading by title: Ordinance No. 1203A; Repealing Ordinance 797A; Chapter 2.20 of the Warrenton Municipal Code.”**

**PUBLIC COMMENT**

Mr. Steve Fulton - Astoria Port Commissioner - encouraged the Commission to take a hard look at development opportunities on the Skipanon Peninsula, the site where the OLN had proposed to build a terminal. He said there are a lot of issues related to development of the property. The Port received a letter from OLN to terminate their lease of the property at the term-end, November this year. He agreed with Commissioner Balensifer that the City should take the lead in putting together a new plan to address development to these water-dependent sites addressed in the CREST Mediation Plan, i.e., Tansy Point and the Skipanon Peninsula. Mr. Fulton took off his “Port Commissioner hat” and stated he knows the City is entering its budget season, and he hopes money can be set aside to go towards improvements to the City’s levee system. “The City needs its levees certified.”

At 6:47 p.m., there being no further business, Mayor Kujala adjourned the regular meeting.

APPROVED

\_\_\_\_\_  
Mark Kujala, Mayor

ATTEST

\_\_\_\_\_  
Linda Engbretson, CMC  
City Recorder

5-B

WARRENTON COMMUNITY CENTER  
Advisory Board Meeting

Meeting Date: February 18, 2016

Place: Warrenton Community Center

Call to Order – Chairman, Frank Becker called the meeting to order at 4:00 PM

Roll Call: Chairman, Frank Becker; Vice Chairman, Marc Silva; Secretary, Carol Snell; Lorna Anderson and Warrenton Finance Director, April Clark. Members absent and excused: Mel Jasmin

Introduction of Guests: None

Public Comment: None

Approval of the January 2016 Annual and Regular Minutes. A motion was offered, by Lorna and seconded by Carol, to approve the minutes already noted. Motion carried.

Financial Report: Finance Director, April Clark, stated the quarterly financial report would not be ready until April.

Old Business: The following tasks for the Easter Breakfast were Assigned:

1. Mel: Flyers to the schools; raffle and clean-up, pick-up coffee and set-up Friday night.
2. Frank: Radio advertisement; talk to WHS for volunteers; keys, cash box and cashier; flyers to community businesses, coordinate pancakes/Pig, clean-up and set-up Friday night.

3. Lorna: In charge of kitchen; coordinate help for washing dishes, servers, clean-up and set-up Friday night.
4. Carol: Advertisements in the Columbia Press and Daily Astorian; get someone to be the Easter Bunny; grocery shopping; set-up Friday night and clean-up.
5. Marc: Use credit union reader board to advertise the event, clean-up and set-up Friday night.
6. April: Donation letters have been sent.

New Business: It was decided not to put flyers in the Chambers monthly letter.

Correspondence: None

Next Meeting: The breakfast will serve as the March meeting. The next meeting will be April 21, 2016.

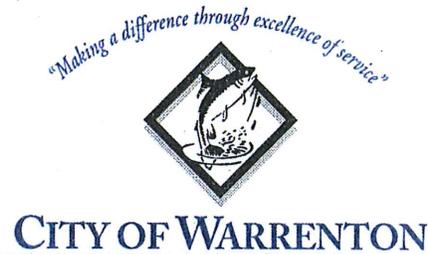
Lorna moved & Marc seconded; to adjourn the meeting at 4:50 PM.

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Frank Becker, Chairman

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Carol Snell, Secretary



## AGENDA MEMORANDUM

TO: The Warrenton City Commission  
FROM: Kurt Fritsch, City Manager   
DATE: May 10, 2016  
SUBJ: Memorandum of Understanding – CREST, the Skipanon Water Control District and City of Warrenton

### SUMMARY

We have enclosed the renewal of the *Memorandum of Understanding Regarding the 8<sup>th</sup> Street Dam Restoration Project* between the Columbia River Estuary Study Taskforce (CREST), the Skipanon Water Control District, and the City for your review and consideration. The previous agreement was approved in April of 2014 and expired December 31, 2015. The purpose of the renewal is to extend the agreement for two more years in order to complete the project, including approval by the Warrenton Planning Commission. Attached is the engineering study completed by Tetra Tech which includes the input from our third party engineer, West Consultants, Inc.

The Commission not ruling on the engineering study or its merits but is merely considering the renewal of the MOU to remove the dam and replace it with an emergency/general access bridge.

**RECOMMENDATION/SUGGESTED MOTION**

*“ I move to approve entering into and authorize signatures on the Memorandum of Understanding Regarding the 8<sup>th</sup> Street Dam Restoration Project between CREST, the Skipanon Water Control District, and the City of Warrenton.”*

**ALTERNATIVE**

Other action as deemed appropriate by the City Commission

**FISCAL IMPACT**

Costs are to be covered through the CREST/BPA contract for the project.

Approved by City Manager: \_\_\_\_\_

All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.

MEMORANDUM OF UNDERSTANDING  
REGARDING THE  
8<sup>th</sup> STREET DAM RESTORATION PROJECT

This agreement is made and entered into in duplicate originals this \_\_\_\_\_ day of \_\_\_\_\_, 2016, by and between the Columbia River Estuary Study Taskforce, hereinafter referred to as "CREST", the City of Warrenton, hereinafter referred to as "CITY", and the Skipanon Water Control District, hereinafter referred to as "DISTRICT".

RECITALS

- (1) CREST has a contract with Bonneville Power Administration under which funds are available to fund the 8<sup>th</sup> Street Dam Restoration Project.
- (2) The DISTRICT is the owner and manager of the 8<sup>th</sup> Street Dam Restoration Project.
- (3) The 8<sup>th</sup> Street Dam Restoration Project is located in the City of Warrenton, and CITY has a gravel, one-lane road on the top of the dam available for local and emergency access.
- (4) CREST, the CITY, and the DISTRICT have voluntarily agreed to work together on improving fish passage on the Skipanon River in the Columbia River Estuary. The 8<sup>th</sup> Street Dam Restoration Project will:
  1. Remove the water control structure, earthen dam and tidegates to improve fish passage and allow full tidal inundation above the dam.
  2. Install a 54' bridge to span the Skipanon River within the existing dam footprint to provide stakeholder access and satisfy the original construction easement between the DISTRICT and CITY.
- (5) The 8<sup>th</sup> Street Dam Restoration Project is estimated to cost approximately \$1,200,000 for engineering and construction. CREST will utilize funds from its Bonneville Power Administration (BPA) contract to fully fund the project. No match is required from the DISTRICT or CITY. CREST is the Project Manager and Fiscal Agent for the project funds. CREST will administer all contracts associated with the project. Oversight of the project will be completed by CREST, in collaboration with the DISTRICT and CITY.

AGREEMENT

NOW THEREFORE, in consideration of the foregoing and of the mutual promises and undertakings hereinafter set forth, the parties agree as follows:

I. Statement of Project

- 1.1 Based on the preliminary cost estimates, funds are currently available within CREST's BPA contract to cover all project costs. Implementation of this project will:
- Remove the water control structure, earthen dam and tidegates.
  - Install a 54-foot, 16-foot single-lane bridge to span the Skipanon River, within the existing dam footprint, to improve fish passage and to allow full tidal inundation above the dam.

- Meet the objectives outlined in the Existing Conditions and Hydraulic Model Memo (Tetra Tech 2013) and Alternatives Analysis Report (2014).

1.2 The project completion date is \_\_\_\_\_.

2. Rights, Duties and Obligations of CREST. CREST shall:

2.1 Update the DISTRICT and CITY regularly on project status throughout engineering, design, and construction phases by participating in DISTRICT Board meetings, CITY Council meetings and other meetings as necessary.

2.2 Complete geotechnical investigation and full engineering to 100 percent in \_\_\_\_\_.

2.3 Provide an Engineering Plan for the DISTRICT, the CITY, Clatsop County Planning Department, and the public, from the project engineers, considering likely river behavior and, noting future operation and management post project implementation.

2.4 Assist with all public meetings regarding the project.

2.5 Present an engineered plan for construction of the 8th Street Dam Restoration Project to the City and DISTRICT in \_\_\_\_\_ for full approval.

CREST understands that the DISTRICT must hold a public meeting regarding this project and that the DISTRICT board must approve the full engineering plans in order for the project to be completed. Upon approval of 100 percent of the plans by the DISTRICT, CREST will complete the following:

2.6 Finalize all necessary funding for construction of the 8th Street Dam Restoration Project.

2.7 Obtain all federal, state and local environmental compliance and other permit approvals for the 8<sup>th</sup> Street Dam Restoration Project.

2.8 Select and hire a construction contractor. CREST shall manage the bidding process, selection of contractor, and manage the contracts for the project.

2.9 Contractor shall obtain and provide to CREST a Certificate of Insurance naming CREST, the CITY and the DISTRICT as additional insured and a Completion Bond for 100 percent of the total project costs.

2.10 Remove dam and tide gates and dispose offsite at a permitted upland location.

2.11 Install a bridge with single traffic lane and guardrails necessary for local traffic and emergency access.

2.12 Restore construction access areas to original condition.

2.13 Control water levels in the restoration area during, construction and prior to removing the dam.

2.14 Conduct pre- and post-project implementation monitoring following BPA Action Effectiveness Monitoring protocols, per CREST's contract with BPA. Provide AEM monitoring reports to BPA.

3. Rights, Duties and Obligations of the DISTRICT. The DISTRICT shall:

3.1 Provide input and approve completion of the project, involving removal of the dam and tide gates and installation of a free spanning 54' bridge within the footprint of the existing dam.

3.2 Allow construction access to the 8th Street Dam throughout the project.

3.3 Sign any necessary permit documents to allow the restoration project to move forward.

4. Rights, Duties and Obligations of the CITY. The CITY shall:

4.1 Provide input involving the installation of a free spanning 54' bridge within the footprint of the existing dam. The City shall review and approve plans at the pre-design, schematic design, and design development phases and prior to completion of construction documents.

4.2 Allow construction access to the 8<sup>th</sup> Street Dam throughout the project.

4.3 Assume ownership of the bridge and provide maintenance for the structure following the completion of construction work.

4.4 Allow for unrestricted water flow of the Skipanon River (up to 12' NGVD) at the project location.

5. INDEMNITY. Up to the limits of the Oregon Tort Claim Act, each party agrees to defend, hold harmless and indemnify other parties from any and all liability, damages, costs, expenses, and attorney fees arising out of the negligent act or omission of any officer, employee, board member, or agent of either party while acting within the scope of their duties and authority for activities arising out of this Memorandum of Understanding.

6. TERMINATION. Up until execution of a contract between the construction contractor and CREST, this agreement shall terminate upon the request of any party (CREST, CITY, or DISTRICT), after giving the other parties 90 days advance notice. Following execution of a contract between CONTRACTOR and CREST, this agreement shall terminate only after mutual agreement between CREST, the CITY, and the DISTRICT.

7. GENERAL PROVISIONS.

7.1 MODIFICATION. The rights and duties under this AGREEMENT shall not be modified, delegated, transferred or assigned, except upon the written-signed consent of the parties. Prior to any modification of this agreement notice shall be provided to both parties at least 10 days in advance.

7.2 ATTORNEYS' FEES. Attorney fees, costs and disbursements necessary to enforce this agreement through mediation, arbitration and/or litigation, including appeals, shall be awarded to the prevailing party, unless otherwise specified herein or agreed.

7.3 LEGAL REPRESENTATION. In entering into this agreement, each party has had the opportunity to consult with counsel or now waives that right.

7.4 NOTICES. Any notice required or permitted under this AGREEMENT shall be in writing and deemed given when:

7.4.1 actually delivered, or

7.4.2 three days after deposit in United States certified mail, postage prepaid, addressed to the other party at their last known address.

7.5 LANGUAGE. The headings of the contract paragraphs are intended for information only and shall not be used to interpret paragraph contents. All masculine, feminine and neuter genders are interchangeable. All singular and plural nouns are interchangeable, unless the context requires otherwise.

7.6 INTEGRATION. This AGREEMENT supersedes all prior oral or written agreements between the parties regarding this site. It represents the entire agreement between the parties. Time is of the essence in all terms, provisions, covenants, and conditions in this agreement.

7.7 SAVINGS. Should any clause or section of this AGREEMENT be declared by a court to be void or voidable, the remainder of this AGREEMENT shall remain in full force and effect.

7.8 JURISDICTION; LAW. This AGREEMENT is executed in the State of Oregon, and is subject to Clatsop County and Oregon law and jurisdiction. Venue shall be in Clatsop County, Oregon, unless otherwise agreed by the parties.

**Acknowledgment: EACH PARTY REPRESENTS TO THE OTHER BY THEIR SIGNATURES BELOW THAT EACH HAS READ, UNDERSTANDS, AND AGREES TO ALL COVENANTS, TERMS AND CONDITIONS OF THIS AGREEMENT. EACH PARTY REPRESENTS TO THE OTHER TO HAVE THE ACTUAL AND/OR APPARENT AUTHORITY TO BEND THEIR RESPECTIVE LEGAL PERSONS, CORPORATE OR OTHERWISE, IN CONTRACT.**

COLUMBIA RIVER ESTUARY STUDY TASKFORCE

DATED THIS \_\_\_\_ DAY OF \_\_\_\_\_, 2016.

By \_\_\_\_\_

SKIPANON WATER CONTROL DISTRICT

DATED THIS \_\_\_\_ DAY OF \_\_\_\_\_, 2016.

By \_\_\_\_\_

Title \_\_\_\_\_

CITY OF WARRENTON

DATED THIS \_\_\_\_ DAY OF \_\_\_\_\_, 2016.

By \_\_\_\_\_

Title \_\_\_\_\_

**Skipanon Water Control District**

Board of Directors  
February 23, 2016  
Pacific Grange  
Meeting Minutes

**Board Members Present:** Tessa Scheller, Gail Galen, Bruce Francis, Robert Stricklin, Chuck Switzer

**Introductions & Announcements.** Guests: Denise Lofman & Matt Van Ness (CREST); Kurt Fritsch (City of Warrenton - "COW")

**Adopt Agenda:** Robert/Chuck/unanimous

**Public Comments** (items not on the agenda)

**Presentations from guests** (if any) Crest delivered to Board all Tetra Tech documents including a large document on thumb drive.

**Review/Accept Minutes.** Add Ryan Kilgren from Tetra Tech at December 18, 2015 meeting. Bruce/Chuck/unanimous

**Treasurer's Report:** Chuck/Bruce/unanimous

**New Business:**

*District Engineering Plan (by Tetra Tech)- is now owned by SWCD, courtesy of CREST, since removal project is on indefinite hold. Motion to accept ownership of the SWCD new District Engineering Plan, dated February 2016, Gail/Bruce/unanimous.*

*Hearing schedule - On hold, until board receives feedback from COW, regarding possible renewal of MOU? Denise said the Engineering Plan does not need to change: Denise and Matt suggested we set a hearing date to formalize engineering plan to enable COW to process the new situation, which is the cancellation of planned replacement of 8th Street Structure with a single lane bridge. April 20, 6:00 pm is set as date for hearing. Notice to go in Daily Astoria Friday March 18.*

*Project Updates - COW had installed warning signage on 8th street; since knocked down; COW is aware of that problem. Chuck thanked Kurt Fritsch for COW filling large potholes on west side of 8th street.*

*Close roadway and remove grating - Tessa reviewed the upstream parts of 8th Street*

structure (grates, cat walks) that have no useful purpose, and pose a maintenance issue for regular debris removal. Parts may be useful at other district structures and might be worth saving. When equipment is on site for that job, SWCD should also complete closing of structure to public usage, by placing "Jersey barriers" off roadway, with locked chain/gate, with extra key to COW for utility usage as stated in the original 1960s easement. Other items discussed were possibility of future spillway as previously recommended by NRCS engineers, and approaching other partners (Watershed Council/OWEB, local tribal leaders, fishing and hunting advocacy groups) for funding the complete removal of the structure. Bruce asked Chair to invite comment from Kurt Fritsch representing COW. Kurt Fritsch would like to share our current plans under discussion with COW commission, now that the original project as approved and funded by BPA has been officially terminated. He said emergency access is his biggest concern, in the big picture. Fritsch suggested a clear message of our new situation to the COW. If we involve the planning commission again, in an attempt to revive the original removal/bridge we should consider involving Tetra Tech in expert testimony presentation. He is willing to ask COW to vote again on renewing original MOU. Denise: the last MOU expired in December, after CREST spent a large number of work hours on this project. She reiterated, CREST only works with willing, voluntary project partners, not needing to fight in adversarial fashion for a project's completion. Denise said as soon as there are willing partners, CREST will move forward with this shovel-ready project. Other project support noted by Tessa; OR Fish & Wildlife, and Federal NRCS, U.S. Fish and Wildlife. Kurt would like to attempt to renew the expired MOU, with COW. Robert/Bruce motion to approve signing renewal of three-party MOU with expiration date extension of two years. Discussion: Bruce noted we have already achieved permits and engineering work of value, and we should try to move forward, rather than risking conflict and alienation within the community by proceeding with blocking access due to our liability exposure. General agreement of BOD. Tessa also wants to find agreeable solutions, but also not let up on actively addressing our documented continued liability exposure. Vote: unanimous.

Removal of grating will wait for outcome of above.

8th Street Structure removal project with new bridge, is officially closed until further notice.

O & M Updates - disconnected log boom at Cullaby Lake structure needs repair; Gail & Tessa plan to fix the connection.

Water Level Log - Tessa reviewed a few high recent water events, noting drainage rate about 3 inches per day is typical. Noted need to remove old boards, no longer in use, from middle structure, and also final removal, of boards in middle structure fish ladder, which will require a chain saw.

**Board Member Reports.** Gail mentioned Devils Lake Water Improvement District plan to assess aeration to prevent harmful algae blooms, and she plans to follow. Also Chuck mentioned seeing more water based wildlife lately.

**Good of the Order**

**Adjourn 1:24 pm**

**Skipanon Water Control District  
Board of Directors  
December 18, 2015  
Pacific Grange**

**Members Present:** Tessa Scheller, Bruce Francis, Gail Galen, Chuck Switzer, Robert Stricklin

**Called to order 1:12** (Immediately following Executive Session: "In accordance with ORS 192.660 (2) (e) and (h), to conduct deliberations with persons you have designated to negotiate real property transactions. To consult with counsel concerning the legal rights and duties of a public body with regard to current litigation or litigation likely to be filed.")

**1. Introductions & Announcements**

*Guests:* CREST representatives: Madeline Ishikawa, Denise Lofman, Justin Saydell, Kelly Hossaini

(Partner, Real Estate and Land Use Team Leader, Miller Nash Graham & Dunn LLP)

*Public:* Robert Clark (Columbia Pacific common Sense), Lori Durham, Ted Thomas (CPCS), Susana Gladwin

**2. Adopt Agenda** motion Gail/Bruce/Unanimous

**3. Public Comments** (items not on the agenda)

Lori Durham - hopes SWCD approves the draft resolution against LNG. CPCS meeting last night was shown our agenda item to discuss LNG.

Ted Thomas - cited DEQ permit for sulfur oxide as evidence that export was the plan from the outset, rather than import as originally presented, which he points out could indicate applicant perjury during the process.

Robert Clark - cited Paris climate conference that the best way to limit CO2 is to leave it in the ground.

**4. Review/Accept Minutes** from October 30, 2015: Bruce/Chuck/Unanimous

**5. Treasurer's Report:** Bruce/Chuck/Unanimous

**6. New Business:**

● *LNG Resolution* Copies were handed to guests. City of Astoria's resolution was used as an outline, with additions and changes specific to SWCD's mission as pertains to water quality, fish habitat, and recreation. Floor opened to comments: Bruce: "common sense". Chuck: cited geologic concerns with the proposed site, known fault line and unstable soils. Gail: pertinent and appropriate for approval by SWCD. Motion to approve the resolution Chuck/Gail. Discussion: Bruce recused himself from voting because of membership on County Planning

Commission. Vote: Unanimous except abstention by Bruce. Gail suggested press release; Robert said it's public record anyway. Chuck doesn't see the need.

●*District Engineering Plan:* Tessa had requested modifications relative to O&M Page (18). The only operations going forward would be Cullaby Lake structure. (8.5 = 12.1 due to different datum source.) Was updated as of December 2015. Tessa suggests that if the 8th Street bridge project does not go forward, we may have to change the engineering plan to reflect that. It was suggested we alter wording in Engineering Plan to suggest SWCD wants to remove the structure, with no mention of a bridge; remove all references to bridge beyond one sentence that the COW requests a bridge. Plan language to reflect that The SWCD BOD is in favor of decommissioning and removing the 8th Street Tidegate structure - discussion as to whether we need various supporting reasons to be stated as follows: unsafe; fish passage barrier; ineffective at purpose of flood control; expensive to maintain; restricts water flow; degrades water quality. Motion to include reasons: Bruce/Chuck/ Discussion: Robert: hesitated to include it in a "plan" document. Bruce: appropriate to state reasons because of unwilling COW. Gail queried if stating "unsafe" increased liability; others pointed out that it is already known and documented as unsafe after a WRD inspection. Vote: Unanimous for Tetra Tech to make changes, including aforementioned reasons.

●*Project Updates:* Tide gates were removed, contractor Clean Sweep Inc. was good to work with and came in under budget. The tide gates were removed for future recycling by the contractor and no future liability to us.

●*O & M Updates* - first fall freshette gauge reached 9.4, dam needed no adjustment. Then before next rain gauge at 8.7 starting level, followed by record rainfall that led to high water, regardless of how low the Cullaby dam gates were placed. Tessa contacted Sheriff office and public works about residences within District at risk during inundations (south of Perkins on Dolphin).

●*Water Level Log* - not available for presentation, but commissioners all aware of recent rain inundations, resulting in levels guessed to be 13 feet (well over gage) in late November. Stories exchanged about high water experiences, this past month. Tessa noted Neacoxie was not as affected by high water, due to changes in the historic water flow direction. Dec 10 had lots of water over Dolphin Road; the most Tessa has ever seen.

●*Insurance invoice* arrived: \$3342 Motion to sign "longevity credit and rate lock agreement" for discount: Robert/Chuck/Unanimous.

**7. Board Member Reports:** Bruce; Shoreline Sanitary District is now fully connected to the Warrenton (CoW) sewer services.

**8. Good of the Order**

**9. Adjourn 2:15**

Submitted by Gail Galen, Secretary/Treasurer



Natural  
Resources  
Conservation  
Service

1201 NE Lloyd Blvd.  
Suite 900  
Portland, OR 98682  
Voice 503-414-3206

February 14, 2014

Tessa James Scheller, Chair  
Skipanon Water Control District  
32607 Turlay Ln.  
Warrenton, OR 97146

Dear Ms. Scheller:

Through the USDA Small Watershed Program, the Natural Resources Conservation Service (NRCS) provided assistance with the installation of three water control structures along Skipanon River in 1963: the Cullaby Lake structure; the middle (Plyter) structure and the 8<sup>th</sup> Street structure in Warrenton. All three structures were designed with a useful life of 50 years. As the structures reached the end of their useful life in 2013, the operation and maintenance agreement between NRCS and the Skipanon Water Control District (District) expired.

Now that the operation and maintenance agreement has expired for the Skipanon River water control structures, the federal interest is complete. The District is free to operate and maintain the structures as the owner, unencumbered by NRCS requirements. The District is free to pursue modifications and/or decommissioning of the Skipanon water control structures in an environmentally sound and safe manner. As the District pursues alternatives regarding the structures, NRCS engineering staff is interested in informally reviewing future studies and work and providing technical comments, though the District is no longer obligated to consult with NRCS.

The Skipanon Water Control District is to be praised for your efforts in properly operating and maintaining the structures. The District has been an outstanding Project Sponsor, performing all operation and maintenance (O&M) as required, and has notified NRCS in writing when adjustments to the O&M plan were necessary. NRCS appreciates your outstanding efforts over the years.

Sincerely,

RONALD ALVARADO  
State Conservationist

cc

Noller Herbert, Director, Conservation Engineering Division, Washington, DC  
Ron Smith, State Conservation Engineer, NRCS, Portland Oregon  
Leo Preston, Acting North Coast Basin Team Leader, NRCS, Portland, Oregon  
Tria Yang, Clatsop County District Conservationist, NRCS, Portland, Oregon  
Roslyn Gray, North Coast Basin Engineer, NRCS, Portland, Oregon  
Meghan Walter, State Hydraulic Engineer, NRCS, Portland, Oregon

# MEMO

**To:** Madeline Ishikawa (Columbia River Estuary Study Taskforce)  
Matt Van Ess (Columbia River Estuary Study Taskforce)

**Cc:**

**From:** Ryan Kilgren, PE  
David Munro, PWS

**Date:** February 2016

**Subject:** Skipanon River 8<sup>th</sup> Street Project Updated Hydraulic Modeling

## 1.0 INTRODUCTION

The Columbia River Estuary Task Force (CREST) is proposing to replace the 8<sup>th</sup> Street Dam, a water control structure on the Skipanon River in Warrenton, OR, with a free-span bridge. Hydraulic modeling and project designs were completed in 2013 and 2014, respectively (Tetra Tech 2013, Tetra Tech 2014, and Tetra Tech 2015).

During the land use permitting process, the City of Warrenton requested West Consultants, Inc. peer-review the hydraulic model and basis of design report. CREST then requested additional hydraulic modeling to address WEST's comments (WEST Consultants 2015). Specifically, CREST requested Tetra Tech evaluate the impacts of upstream bridge parameters on with-project flow conditions, survey and include additional channel cross sections in the study, and update previously modeled water surface elevations by extending the cross sections into the floodplain. This memo is intended to describe the methods used to update the hydraulic model and summarize the results.

## 2.0 8<sup>TH</sup> STREET DAM EXISTING OPERATIONAL CONDITIONS

The previous hydraulic analysis for the Skipanon River 8<sup>th</sup> Street Dam conducted for the replacement project considered the existing conditions for the dam to have tidegates in the open position (Tetra Tech 2013) and utilized hydrologic information developed by the NRCS (2002). These conditions were not changed for the updated model. **The tidegate position for the existing condition and the hydrology is based on information developed by NRCS (1999, 2001, and 2002) and it was communicated to Tetra Tech by CREST and the Skipanon Water Control District that the tidegates have been operated in the fully open position since the spring of 2012 (Tetra Tech 2013).** The Skipanon Water Control District is committed to operating the water control structure at 8<sup>th</sup> Street with the tidegates open year-round, until the structure is removed and replaced.

### 3.0 MODELED FLOODPLAIN AND BRIDGES

The model geometry was revised from that utilized in previous studies (Tetra Tech 2013, 2014, and 2015) using supplemental surveyed bathymetric and topographic data and bare earth LiDAR-derived topographic data. An additional 39 cross sections were surveyed along the length of the Skipanon River from the OR HWY 104S to the Carnahan Park bridges, including those cross sections surveyed upstream and downstream of bridges identified (**Table 1**) for inclusion in the updated model. The model was extended upstream to include the Skipanon River adjacent to Carnahan Park and downstream of the Cullaby Lake Water Control Structure. Thirteen of the additional cross sections were collected between the OR HWY 104S and US HWY 101 bridges to represent the winding and sluggish nature of this section. A total of 12 bridges were added to the updated model (**Table 1**). Floodplain topographies were derived from the DOGAMI 2009 LiDAR dataset and added to the model cross sections.

**Table 1. Bridges added to updated model.**

HEC-RAS Station	Bridge Name
41834.94	Carnahan Park
38209.61	Private Bridge
36058.62	Private Bridge
35254.14	Private Bridge (Scheller Bridge)
33633.32	Private Bridge
32381.26	Private Bridge
31250.28	Waterworks Road
30172.59	Fort to Sea Trail
27887.42	Perkins Lane
25818.07	Dolphin Road
22729.18	US HWY 101
17201.69	OR HWY 104S

### 4.0 MODEL ROUGHNESS COEFFICIENTS

Hydraulic resistance along the river bed, bank, and floodplain is accounted for in the model through designation of Manning's n roughness coefficients. The Manning's n roughness coefficients were revised in the updated model to represent varying floodplain surface types. The roughness coefficients selected for the floodplain areas were determined through inspection of land cover types along each model cross section and by utilizing roughness coefficients provided in published literature (ODOT 2011 and HEC-RAS user manual USACE 2010) that correspond to the land cover types identified. A single roughness coefficient was selected for the channel and as previously described (Tetra Tech 2013) was determined using the ODOT Hydraulics Manual (2011) to be representative of primarily plain-bed streams that are generally clean, winding, with some pools and riffles, and that may include weedy, sluggish, and rougher gravel sections. Simulations of the two previously evaluated low flow calibration events were then conducted using the updated model and the model results were compared to

previous calibration results to confirm the roughness coefficient selected. The final Manning's n values applied to all higher flow simulations are provided in **Table 2**.

**Table 2. Manning's Roughness Coefficients used in updated hydraulic modeling.**

Roughness Type	Roughness Coefficient
Channel	0.045
Marsh	0.07
Forest	0.10
Pasture	0.05
Urban	0.055

## 5.0 MODELED HYDROLOGIC CONDITIONS

As described in previous project documentation (NRCS 2002), the Skipanon River is ungaged and all runoff hydrologies are estimated. Higher precision estimates would require flow measurements. In the absence of flow measurements, the previous analysis and updated analysis presented here rely upon flows estimated using the drainage area ratio method to scale gage information from the nearby Youngs River to the Skipanon River. The drainage area ratio method is a commonly used technique for estimating streamflow for ungaged locations and is described by the following equation:

$$Q_{ungaged} = \frac{A_{ungaged}}{A_{gaged}} \times Q_{gaged}$$

where:

$Q_{ungaged}$  = Flow at the ungaged location (e.g. Skipanon River),

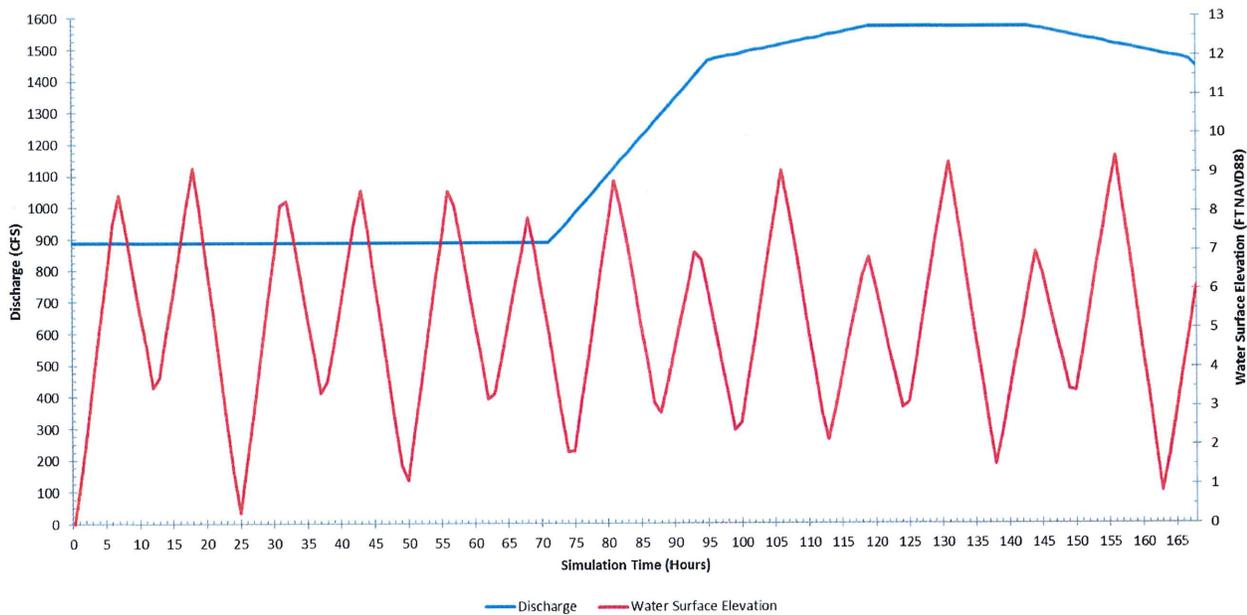
$Q_{gaged}$  = Flow at the gaged location (e.g. Youngs River),

$A_{ungaged}$  = Drainage area at the ungaged location (e.g. Skipanon River), and

$A_{gaged}$  = Drainage area at the gaged location (e.g. Youngs River).

When using the drainage area ratio method, it is preferable to use gaged sites with drainage area equal to, or else as close to as possible, the drainage area of the ungaged location. Additionally, it is preferable to use gaged site data that has similar precipitation and expected runoff patterns. If possible, it is preferable to use a gaged site within the same drainage basin, but if not possible, selecting a nearby gage with similar drainage area, precipitation, and expected runoff is a common technique of hydrologic analyses. The Youngs River watershed is relatively close, approximately 5 miles, to the Skipanon River watershed, has similar precipitation and expected runoff patterns, and also provides the nearest gaged watershed with respect to the location of the Skipanon River.

For the updated analysis presented here, an additional high flow hydrograph was developed by utilizing the estimated 100-year peak discharge of 1,570 cubic feet per second for the Skipanon River (OWRD 2013). The boundary conditions associated with the 100-year return period flood hydrograph combined with the normal tide is shown in **Figure 1**.



**Figure 1. Boundary condition for 100-year return period flood flow and normal tide.**

Similar to the previous analysis, this 100-year hydrograph was evaluated assuming coincident occurrence of a normal tide cycle (Table 3). The bridge design criteria cited in previous project documentation (Tetra Tech 2013) was established from the ODOT bridge design criteria (ODOT 2011) as a minimum standard, which utilizes the mean higher high water (MHHW) level occurring coincident with the design flood event. The previously estimated MHHW (Tetra Tech 2013) for the Skipanon River is 8.81 feet relative to the North American Vertical Datum of 1988 (NAVD88). The evaluated normal tide condition has a 7 day duration, with a maximum tidal elevation of 9.44 feet NAVD88. Thus, the normal tide cycle used is both appropriate for design performance evaluation of the proposed bridge and provides a conservative downstream model boundary condition that has a higher MHHW than the minimum design standard.

**Table 3. Modeled hydrologic conditions.**

Scenario	Return Period Flood Flow (years)	Tide Cycle
1	2	Normal
2	10	Normal
3	25	Normal
4	100	Normal

## 6.0 RESULTS

The comparison of the with- and without-project conditions for each of the evaluated hydrologic scenarios informs the potential influence of the project on the Skipanon River maximum water surface elevations. The larger conveyance area associated with the with-project bridge results in a tidal influence that extends further upstream

of the proposed 8<sup>th</sup> Street bridge for each of the hydrologic scenarios except for the 100-year return period flood flow. The model results indicated that for the hydraulic conditions along the Skipanon River for the normal tide with 100-year return period flood flow are dominated by the upstream flood flow and that the water surface elevations are dominated by the ability of the river reach to convey the flood rather than the tidal influence. **The increased conveyance capacity associated with the proposed bridge increases the ability of the watershed to efficiently drain and convey the 100-year flow.** Conversely, the remaining hydrologic conditions are influenced more heavily by tidal effects and the associated limitation of drainage of watershed runoff imposed by the hydraulic grade maintained by the higher tides. The largest relative increases in upstream elevations for the with-project conditions subsequently occur during hydrologic conditions most dominated by tidal influences and least dominated by riverine influences or rather during the higher frequency (lower peak discharge) return period flood flows. The largest increase occurs for the 2-year return period flows. The maximum increases occur close to the proposed 8<sup>th</sup> Street bridge, and decrease in the upstream direction as the tidal influence dampens.

The maximum increases in water surface elevation for each scenario are provided in **Table 4**. The maximum predicted increase for the normal tide occurs with 2-year flood flow event as 0.15 feet (approximately 1.8 inches) and at a location along the reach of the Skipanon River between OR HWY 104S and 8<sup>th</sup> Street. This reach has levee-protected right banks and high natural ground on the left bank. The increases do not cause the water surface elevation within this river reach to exceed the capacity of the levee and high ground; and therefore, the with-project conditions do not result in increased inundation of the floodplain. **Figure 2** shows an example cross section along this reach with the water surface elevations plotted for the with- and without-project conditions.

The maximum predicted increase for the normal tide and 2-year flood flow event between OR HWY 104S and US HWY 101 is 0.13 feet (approximately 1.6 inches). Within this reach, the floodplain areas immediately adjacent to the channel are densely vegetated with riparian and wetland plants. Additionally, tidal slough channels exist allowing connectivity from the channel to the wetland areas. Overbank flows occur along this reach for both the with- and without-project conditions. **Figure 3** and **Figure 4** show example cross sections along this reach with the modeled water surface elevations plotted for the with- and without-project conditions.

**Table 4. Maximum increases and decreases in water surface elevation along the Skipanon River associated with the with-project conditions.\***

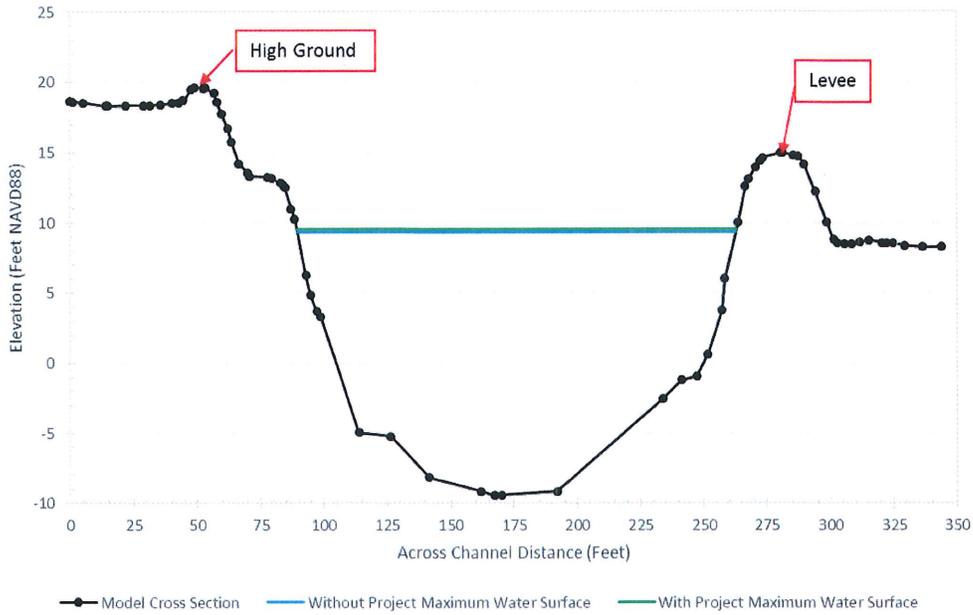
Scenario	Return Period Flood Flow (years)	Tide Cycle	Maximum Increase in Water Surface Elevation With-Project Along Entire Skipanon River (shown with units of feet and inches within brackets)feet)	Maximum Increase in Water Surface Elevation With-Project Between 8 <sup>th</sup> Street and OR HWY 104S (feet)	Maximum Increase in Water Surface Elevation With-Project Between OR HWY 104S and US HWY 101 (feet)	Maximum Increase in Water Surface Elevation With-Project Between US HWY 101 and Dolphin Road (feet)
1	2	Normal	0.15 [1.8]	0.15 <sup>1</sup>	0.13 <sup>2,3</sup>	0.12 <sup>2,3</sup>
2	10	Normal	0.08 [1]	0.08 <sup>1</sup>	0.08 <sup>2,3</sup>	0.07 <sup>2,3</sup>
3	25	Normal	0.07 [0.8]	0.07 <sup>1</sup>	0.07 <sup>2,3</sup>	0.06 <sup>2,3</sup>
4	100	Normal	0.01 [0.1]	-0.1 <sup>1</sup>	-0.13 <sup>2,3</sup>	-0.05 <sup>2,3</sup>

Notes

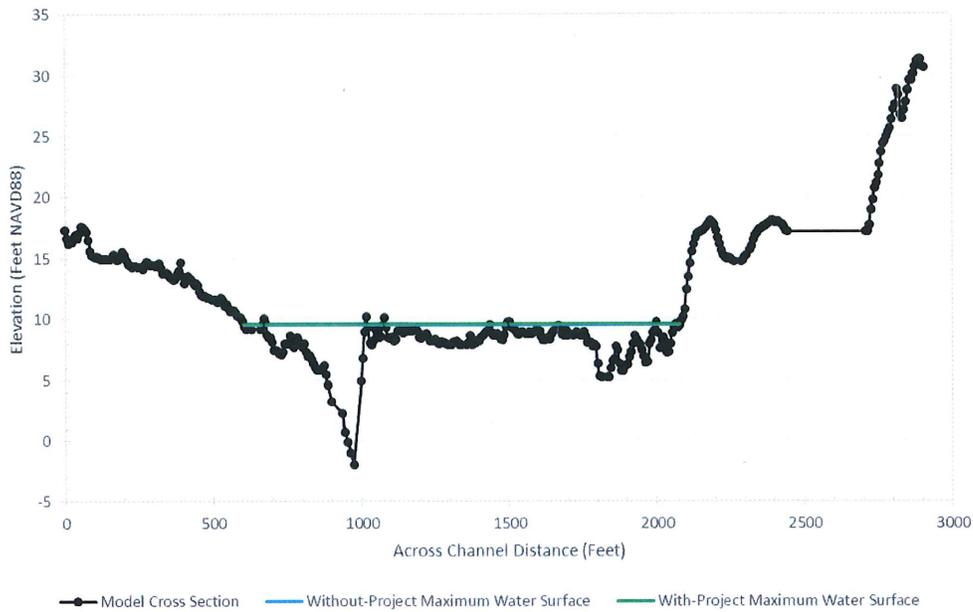
1. Flow is confined to the channel or levee protected area only
2. Overbank/floodplain flow occurs for the without-project conditions
3. Overbank/floodplain flow occurs for the with-project conditions

\* Negative values correspond to lower water surfaces elevations predicted for the with-project conditions than the without-project conditions.

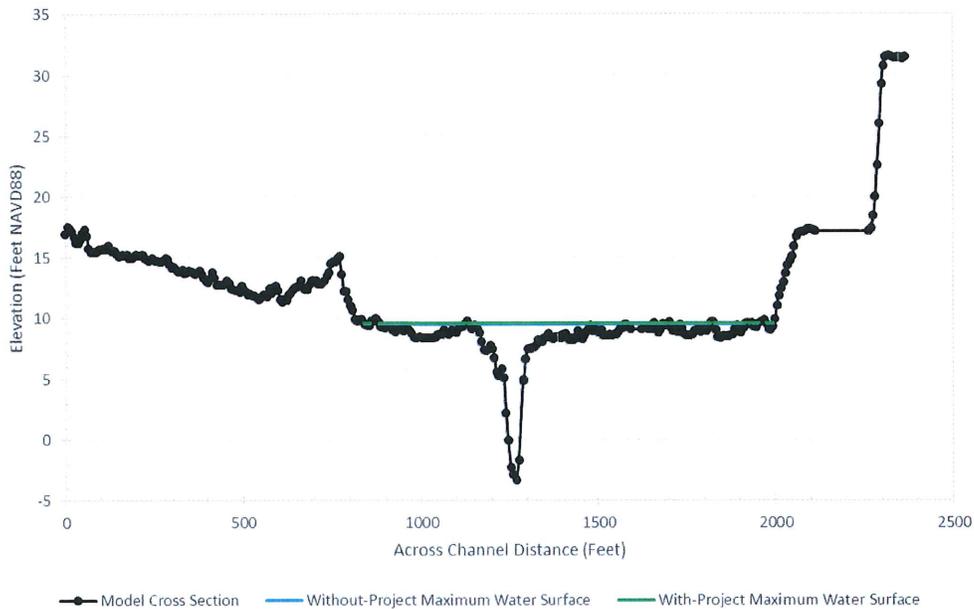
The next reach of the Skipanon River extends upstream from the US HWY 101 bridge to the Dolphin Road bridge. The maximum predicted increase for the normal tide and 2-year flood flow event within this reach is 0.12 feet (approximately 1.4 inches) and occurs within 350 feet upstream of the US HWY 101 bridge (**Figure 5**). The floodplain areas immediately adjacent to the channel of this reach are densely vegetated with riparian and wetland plants. Along the upper 1,000 feet of this reach, with the exception of flow through an ungated culvert, flow connection with the wetland (floodplain) areas to the east do not occur until flood flows cause the Skipanon River level to exceed the Dolphin Road berm elevation. However, except for the both the with- and without-project conditions for the 100-year return period flow, overtopping of the Dolphin Road berm is not predicted to occur for either the with- or without-project conditions for each of the higher frequency return periods (i.e. 2-year, 10-year, and 25-year) modeled. Flow confinement within the Skipanon River channel and non-overtopping of the Dolphin Road berm for the 2-year return period modeled results is shown in **Figure 6**.



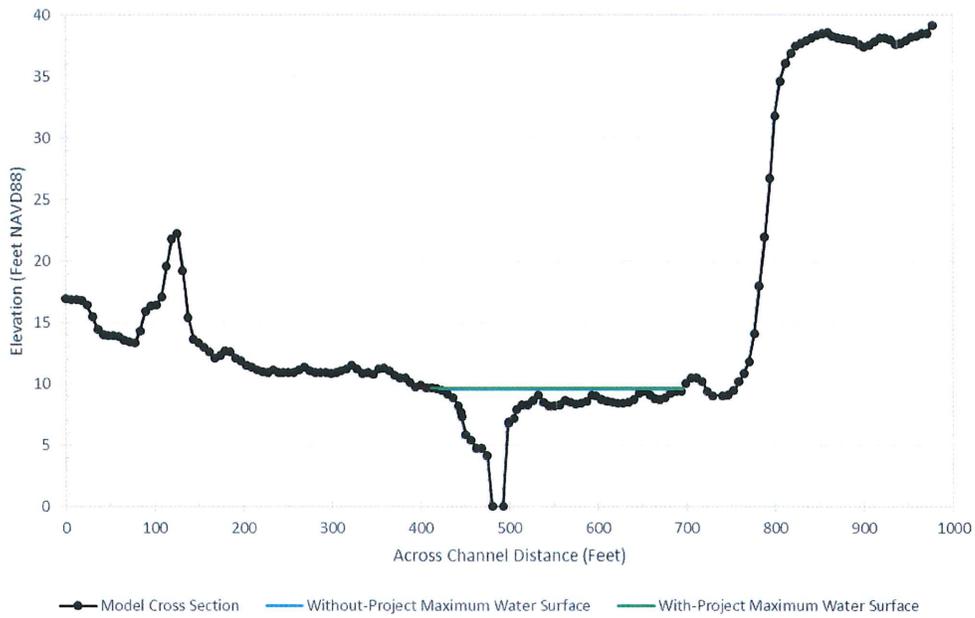
**Figure 2. Maximum water surface elevations for With- and Without-Project conditions between OR HWY 104S bridge and 8<sup>th</sup> Street crossing at cross section station 11903.3 for the normal tide and 2-year return period flood flow. Note that the difference between the With- and Without-project conditions is 0.15 feet and not discernible on the plot.**



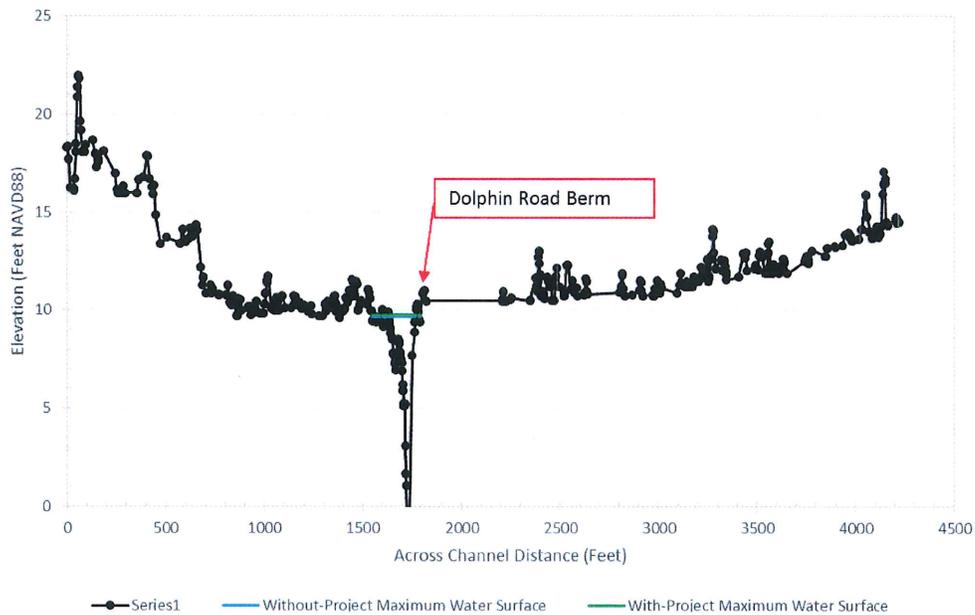
**Figure 3. Maximum water surface elevations for With- and Without-Project conditions between US HWY 101 bridge and OR HWY 104S bridge at cross section station 20597.5 for the normal tide and 2-year return period flood flow. Note that the difference between the With- and Without-Project conditions is 0.13 feet and not discernible on the plot.**



**Figure 4. Maximum water surface elevations for With- and Without-Project conditions between US HWY 101 bridge and OR HWY 104S bridge at cross section station 20912.67 for the normal tide and 2-year return period flood flow. Note that the difference between the With- and Without-Project conditions is 0.12 feet and not discernible on the plot.**



**Figure 5. Maximum water surface elevations for With- and Without-Project conditions between Dolphin Road bridge and US HWY 101 bridge at cross section station 23078.58 for the normal tide and 2-year return period flood flow. Note that the difference between the With- and Without-Project conditions is 0.12 feet and not discernible on the plot.**



**Figure 6. Maximum water surface elevations for With- and Without-Project conditions between Dolphin Road bridge and US HWY 101 bridge at cross section station 25022.3 for the normal tide and 2-year return period flood flow. Note that the difference between the With- and Without-Project conditions is 0.09 feet and not discernible on the plot.**

Attachment A to this memorandum includes tabulated results for the maximum water surface elevations at each modeled cross section and for each of the evaluated scenarios for the with- and without-project conditions.

Attachment B to this memorandum includes longitudinal channel profile plots of the maximum water surface elevation for the normal tide scenarios and longitudinal channel profile plots of differences between the with- and without-project conditions for the normal tide condition.

## 7.0 SUMMARY

The main points of the revised and previous studies in terms of the potential effects of the proposed project on upstream water surface elevations and flooding during flood events (Tetra Tech 2013, Tetra Tech 2014, and Tetra Tech 2015) are summarized as follows:

- CREST staff collected photographic documentation of high water levels along the Skipanon River occurring on December 10, 2015 that were associated with a combination of high flows on the Skipanon River and high downstream tide elevation. These photos are provided Attachment C to this memorandum.
- No instrument collected discharge measurements are known to exist for the Skipanon River, nor were any collected as part of this project nor made available to this project from other planning and design projects along the Skipanon River. The gaged flow record from the Youngs River was utilized to develop flood hydrographs for the Skipanon River using the drainage area ratio method. The hydrographs developed were assigned peak flows with a duration of 24 hours, which provides a conservatively long duration estimate of inflow value for a small watershed with rainfall-runoff dominated flood regime.
- Flood flow hydrographs obtained from previous NRCS analysis (NRCS 2002) used standard methods of practice to scale the flows from the Youngs River, a nearby and similar watershed, with a gaged record of water surface elevation. This standard hydrologic analytical technique is commonly applied to ungaged basins in order to develop flow scenarios for the evaluation of hydraulic effects.
- A 100-year hydrograph was estimated using the peak discharge provided by the Oregon Water Resources Department's (OWRD 2013) regional regression application and then by scaling from the NRCS (2002) developed hydrographs to obtain a 7 day flow event.
- There are no high flow water surface elevation measurements to compare and calibrate higher flow events, nor are there corresponding measured discharges that could be used to simulate those events if they were available.
- Installation of the proposed 8th Street bridge would improve fish passage by reducing the velocity and eliminating the covered (culverted) swimming section of the river.
- Installation of the proposed 8th Street bridge would increase the conveyance of the river and nutrient exchange to improve water quality conditions within the Skipanon River.
- For the majority of the return flows, installation of the proposed 8th Street bridge would minimally increase tidal influence upstream of the 8th Street Bridge (**Table 4**) with the largest predicted impact on upstream maximum water surface elevations as a 0.15 foot (approximately 1.8 inches) increase during lower return period (lower flow, e.g. 2-year return period flood flow) flood events and decrease as the return period increases (increase of 0.08 feet for the 10-year return period flood flow, 0.07 feet for the 25-year return period flood flow, and 0.01 feet for the 100-year return period flood flow).
- For some return periods and locations along the Skipanon River, lower maximum water surface elevations are predicted for the with-project conditions due to the increased conveyance associated with the larger opening of the proposed bridge than the existing culverts. The largest decrease predicted of -0.18 feet (approximately 2.2 inches) occurs between the OR HWY 104S and US HWY 101 bridges at HEC-RAS cross section station 19616.13 for the 100-year return period flow (See Attachment A). Therefore, it is logical to interpret that during these return periods, the with-project conditions will improve potential upstream flood conditions by allowing water to drain out of the system more efficiently.
- The largest increases, 0.15 feet (1.8 inches), predicted for the with-project conditions for the normal tide scenarios occurs during the 2-year flood and within the Skipanon River reach that is partially levee protected (between the OR HWY 104S bridge and 8th Street). **The increase does not result in flows**

**leaving the channel. No flooding occurs during this scenario.** The increases diminish moving upstream, and either:

- Impact tidal wetland areas that are also inundated for the without-project conditions, or
- Do not cause the flow within the channel to rise above the bank elevation.
- All water surface elevation increases are minimal, on the order of 0.1 feet or less.
- Water surface elevation increases predicted to cause overbank/floodplain flows occur for both the with- and without-project conditions (**Table 4**). Therefore, the implementation of the with-project conditions will not worsen flood conditions within the Skipanon River basin. Scenarios where flooding may occur with the proposed bridge in place would also occur under current site conditions.

## 8.0 REFERENCES

Oregon Department of Geology and Mineral Industries (DOGAMI). 2009. LiDAR Remote Sensing Data Collection. Oregon North Coast. Submitted by Watershed Sciences. December 21, 2009.

Oregon Department of Transportation (ODOT). 2011. Hydraulics Manual.

Oregon Water Resources Department (OWRD). 2013. Estimation of Peak Discharges. Skipanon River. Watershed ID: 30100602. Available at: [http://apps.wrd.state.or.us/apps/sw/peak\\_discharge\\_map/](http://apps.wrd.state.or.us/apps/sw/peak_discharge_map/)

National Oceanic and Atmospheric Administration (NOAA). 2015. Tides & Currents: Annual Exceedance Probability Curves; 9439040 Astoria, OR. Available at: <https://tidesandcurrents.noaa.gov/est/curves.shtml?stnid=9439040>

Tetra Tech. 2013. Skipanon River – 8<sup>th</sup> Street Dam Modelign and Feasibility Study; Existing Conditions Hydraulic Model. November 2013.

Tetra Tech. 2014. Skipanon River Restoration Project Alternatives Analysis. March 2014.

Tetra Tech. 2015. 8<sup>th</sup> Street Dam Replacement Project; Final Basis of Design Report. February 2015.

United States Army Corps of Engineers (USACE). 2010. HEC-RAS River Analysis System: Hydraulic Reference Manual. Version 4.1. Available at: <http://www.hec.usace.army.mil/software/hecras/>

United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS). 1999. Skipanon River Hydrologic Analysis. August 17, 1999.

USDA NRCS. 2001. Skipanon River Hydraulic Analysis; 8<sup>th</sup> Street Tide Gate Structure; Astoria, Oregon. August 2001.

USDA NRCS. 2002. Summary Report on Skipanon River PL-566 Watershed Project. February 27, 2002. WEST Consultants. 2015. Draft Technical Memorandum: Technical Review of the Skipanon River – 8<sup>th</sup> St. Dam Modeling and Feasibility Study Existing Conditions and Hydraulic Model, Dated: November 2013.

## 9.0 ATTACHMENTS

- A. Tabular model results
- B. Normal tide scenario along channel profiles of maximum water surface elevation
- C. Photo log of high Skipanon River flows and tides occurring on December 10, 2015

Attachment A. Tabular model results

River Station	Existing Conditions Maximum Water Surface Elevations (Feet NAVD88)				Alternative Conditions Maximum Water Surface Elevations (Feet NAVD88)				Differences between Alternative Conditions and Existing Conditions (Feet)			
	Normal Tide				Normal Tide				Normal Tide			
	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year
41922.11	15.16	16.52	16.85	19.31	15.16	16.52	16.85	19.31	0	0	0	0
41859.26	14.99	16.32	16.64	18.96	14.99	16.32	16.64	18.96	0	0	0	0
41834.94 Carnahan Park Bridge												
41827.02	15.08	16.41	16.74	18.81	15.08	16.41	16.74	18.81	0	0	0	0
41722.68	15.05	16.39	16.72	18.83	15.05	16.39	16.72	18.83	0	0	0	0
41600.46	14.99	16.31	16.64	18.76	14.99	16.31	16.64	18.76	0	0	0	0
41371.59	14.9	16.2	16.52	18.62	14.9	16.2	16.52	18.62	0	0	0	0
41103.69	14.77	16.04	16.35	18.32	14.77	16.04	16.35	18.32	0	0	0	0
40930.22	14.68	15.93	16.24	18.09	14.68	15.93	16.23	18.09	0	0	-0.01	0
40823.07	14.61	15.84	16.15	17.91	14.61	15.84	16.15	17.91	0	0	0	0
40634.26	14.51	15.72	16.02	17.72	14.51	15.72	16.02	17.72	0	0	0	0
40416.53	14.37	15.57	15.87	17.58	14.37	15.57	15.87	17.58	0	0	0	0
40113.33	14.18	15.32	15.63	17.42	14.18	15.32	15.63	17.42	0	0	0	0
40018.01	14.12	15.25	15.56	17.36	14.12	15.25	15.55	17.36	0	0	-0.01	0
39823.96	14	15.1	15.39	17.09	14	15.1	15.39	17.09	0	0	0	0
39629	13.89	14.95	15.22	16.87	13.89	14.95	15.22	16.87	0	0	0	0
39331.79	13.72	14.74	14.98	16.63	13.72	14.74	14.98	16.62	0	0	0	-0.01
39044.79	13.57	14.62	14.86	16.54	13.57	14.62	14.86	16.53	0	0	0	-0.01
38750.57	13.4	14.43	14.66	16.47	13.4	14.43	14.66	16.47	0	0	0	0
38458.33	13.26	14.25	14.47	16.41	13.26	14.25	14.47	16.41	0	0	0	0
38263.08	13.17	14.13	14.34	16.22	13.17	14.13	14.34	16.22	0	0	0	0
38209.61 Private Bridge												
38188.41	13.13	14.07	14.27	15.89	13.13	14.07	14.27	15.89	0	0	0	0
37974.45	13.06	13.96	14.16	15.68	13.06	13.96	14.16	15.68	0	0	0	0
37682.11	12.98	13.86	14.05	15.47	12.97	13.86	14.05	15.47	-0.01	0	0	0
37290.49	12.87	13.72	13.9	15.26	12.87	13.72	13.9	15.25	0	0	0	-0.01
37251.59	12.86	13.72	13.9	15.26	12.86	13.72	13.9	15.26	0	0	0	0
37109.09	12.81	13.68	13.87	15.23	12.81	13.68	13.87	15.23	0	0	0	0
37095.09 Middle Control Structure												
37058.79	12.66	13.53	13.72	15.18	12.66	13.53	13.72	15.18	0	0	0	0
36763.71	12.55	13.41	13.6	15.12	12.55	13.41	13.6	15.11	0	0	0	-0.01
36104.02	12.4	13.24	13.42	14.98	12.4	13.24	13.42	14.98	0	0	0	0
36058.62 Private Bridge												
36049.46	12.37	13.22	13.4	14.96	12.37	13.22	13.4	14.96	0	0	0	0
35862.28	12.35	13.2	13.38	14.93	12.35	13.2	13.38	14.93	0	0	0	0
35279.85	12.13	13	13.18	14.74	12.13	13	13.18	14.74	0	0	0	0
35254.14 Scheller Bridge												
35196.96	12.04	12.84	13.02	14.56	12.04	12.84	13.02	14.56	0	0	0	0
34779.19	11.96	12.74	12.92	14.46	11.96	12.74	12.92	14.45	0	0	0	-0.01
34486.2	11.92	12.71	12.89	14.43	11.92	12.71	12.89	14.42	0	0	0	-0.01
34192.33	11.89	12.68	12.86	14.4	11.89	12.68	12.86	14.39	0	0	0	-0.01
33995.48	11.86	12.65	12.83	14.37	11.85	12.65	12.83	14.36	-0.01	0	0	-0.01
33703.39	11.79	12.6	12.78	14.32	11.79	12.6	12.78	14.31	0	0	0	-0.01
33642.67	11.7	12.51	12.7	14.24	11.7	12.51	12.7	14.24	0	0	0	0
33633.32 Private Bridge												

Tabular model results (continued)

River Station	Existing Conditions Maximum Water Surface Elevations (Feet NAVD88)				Alternative Conditions Maximum Water Surface Elevations (Feet NAVD88)				Differences between Alternative Conditions and Existing Conditions (Feet)			
	Normal Tide				Normal Tide				Normal Tide			
	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year
33615.96	11.71	12.49	12.67	14.15	11.71	12.49	12.66	14.15	0	0	-0.01	0
33304.96	11.58	12.36	12.53	14.02	11.58	12.36	12.53	14.01	0	0	0	-0.01
33004.41	11.48	12.29	12.47	13.96	11.48	12.29	12.46	13.95	0	0	-0.01	-0.01
32399.88	11.2	11.97	12.15	13.7	11.2	11.97	12.15	13.69	0	0	0	-0.01
32381.26 Private Bridge												
32363.33	11.18	11.96	12.14	13.7	11.18	11.96	12.13	13.69	0	0	-0.01	-0.01
32105.12	11.14	11.92	12.1	13.67	11.14	11.92	12.1	13.66	0	0	0	-0.01
31801.96	11.04	11.83	12.01	13.57	11.05	11.83	12	13.56	0.01	0	-0.01	-0.01
31522.65	10.99	11.79	11.97	13.53	11	11.78	11.96	13.52	0.01	-0.01	-0.01	-0.01
31265.79	10.96	11.76	11.95	13.51	10.97	11.76	11.94	13.5	0.01	0	-0.01	-0.01
31250.28 Watertower Bridge												
31233.93	10.95	11.76	11.94	13.51	10.95	11.75	11.93	13.49	0	-0.01	-0.01	-0.02
30914.79	10.91	11.73	11.91	13.48	10.92	11.73	11.91	13.47	0.01	0	0	-0.01
30610.84	10.86	11.7	11.88	13.46	10.87	11.69	11.88	13.44	0.01	-0.01	0	-0.02
30187.44	10.69	11.54	11.72	13.29	10.7	11.54	11.72	13.27	0.01	0	0	-0.02
30172.59 Fort to Sea Bridge												
29826.98	10.5	11.27	11.44	13	10.52	11.26	11.43	12.97	0.02	-0.01	-0.01	-0.03
29384.41	10.39	11.12	11.28	12.83	10.41	11.11	11.27	12.81	0.02	-0.01	-0.01	-0.02
29158.1	10.34	11.08	11.25	12.8	10.36	11.08	11.24	12.78	0.02	0	-0.01	-0.02
28498.6	10.19	10.9	11.08	12.62	10.22	10.89	11.07	12.59	0.03	-0.01	-0.01	-0.03
28007.02	10.09	10.77	10.95	12.48	10.13	10.76	10.94	12.45	0.04	-0.01	-0.01	-0.03
27935.7	10.05	10.73	10.92	12.47	10.09	10.73	10.91	12.44	0.04	0	-0.01	-0.03
27887.42 Perkins Lane Bridge												
27843.4	10.03	10.67	10.85	12.38	10.07	10.66	10.83	12.35	0.04	-0.01	-0.02	-0.03
27777.95	10	10.61	10.79	12.35	10.04	10.6	10.77	12.31	0.04	-0.01	-0.02	-0.04
27328.96	9.91	10.47	10.64	12.23	9.96	10.47	10.63	12.18	0.05	0	-0.01	-0.05
27228.9	9.9	10.45	10.62	12.21	9.95	10.45	10.61	12.17	0.05	0	-0.01	-0.04
26720.84	9.84	10.36	10.51	12.13	9.9	10.36	10.5	12.09	0.06	0	-0.01	-0.04
25932.79	9.76	10.23	10.36	12.01	9.83	10.24	10.35	11.96	0.07	0.01	-0.01	-0.05
25860.2	9.74	10.18	10.29	11.95	9.81	10.19	10.29	11.86	0.07	0.01	0	-0.09
25818.07 Dolphin Road Bridge												
25793.64	9.7	10.09	10.18	11.67	9.78	10.11	10.18	11.62	0.08	0.02	0	-0.05
25643.6	9.7	10.1	10.19	11.62	9.79	10.12	10.2	11.56	0.09	0.02	0.01	-0.06
25574.79	9.7	10.1	10.19	11.61	9.79	10.12	10.2	11.55	0.09	0.02	0.01	-0.06
25199.96	9.68	10.06	10.14	11.55	9.77	10.09	10.16	11.48	0.09	0.03	0.02	-0.07
25102.31	9.68	10.04	10.12	11.52	9.76	10.07	10.14	11.46	0.08	0.03	0.02	-0.06
25022.3	9.67	10.03	10.11	11.49	9.76	10.06	10.13	11.42	0.09	0.03	0.02	-0.07
24913.34	9.65	9.97	10.04	11.41	9.74	10.01	10.07	11.33	0.09	0.04	0.03	-0.08
24841.77	9.64	9.96	10.03	11.34	9.73	10	10.06	11.26	0.09	0.04	0.03	-0.08
24367.61	9.62	9.91	9.98	11.25	9.71	9.95	10.01	11.16	0.09	0.04	0.03	-0.09
23951.43	9.6	9.88	9.94	11.19	9.7	9.92	9.97	11.09	0.1	0.04	0.03	-0.1
23856.06	9.59	9.87	9.93	11.17	9.7	9.91	9.96	11.07	0.11	0.04	0.03	-0.1
23480.45	9.56	9.8	9.86	11.01	9.67	9.85	9.9	10.9	0.11	0.05	0.04	-0.11
23078.58	9.53	9.73	9.77	10.79	9.65	9.79	9.82	10.66	0.12	0.06	0.05	-0.13
22757.76	9.51	9.68	9.72	10.61	9.63	9.75	9.78	10.47	0.12	0.07	0.06	-0.14
22729.18 US 101 Bridge												
22709.08	9.51	9.68	9.72	10.58	9.63	9.74	9.77	10.43	0.12	0.06	0.05	-0.15

Tabular model results (continued)

River Station	Existing Conditions Maximum Water Surface Elevations (Feet NAVD88)				Alternative Conditions Maximum Water Surface Elevations (Feet NAVD88)				Differences between Alternative Conditions and Existing Conditions (Feet)			
	Normal Tide				Normal Tide				Normal Tide			
	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year
22609	9.51	9.66	9.7	10.51	9.63	9.73	9.76	10.36	0.12	0.07	0.06	-0.15
22512.36	9.5	9.66	9.69	10.47	9.62	9.73	9.75	10.32	0.12	0.07	0.06	-0.15
22193.2	9.49	9.64	9.67	10.38	9.62	9.71	9.73	10.23	0.13	0.07	0.06	-0.15
21728.07	9.49	9.62	9.65	10.33	9.61	9.69	9.71	10.17	0.12	0.07	0.06	-0.16
21185.11	9.48	9.61	9.63	10.27	9.6	9.68	9.7	10.11	0.12	0.07	0.07	-0.16
20912.67	9.47	9.6	9.62	10.23	9.59	9.67	9.68	10.06	0.12	0.07	0.06	-0.17
20597.5	9.46	9.59	9.61	10.2	9.59	9.66	9.68	10.04	0.13	0.07	0.07	-0.16
20258.47	9.45	9.57	9.6	10.13	9.57	9.65	9.66	9.96	0.12	0.08	0.06	-0.17
19894	9.44	9.56	9.58	10.09	9.56	9.63	9.65	9.92	0.12	0.07	0.07	-0.17
19616.13	9.43	9.55	9.57	10.05	9.55	9.62	9.64	9.87	0.12	0.07	0.07	-0.18
19356.15	9.43	9.54	9.56	10.01	9.54	9.61	9.63	9.84	0.11	0.07	0.07	-0.17
19000.06	9.42	9.53	9.55	9.98	9.53	9.6	9.62	9.81	0.11	0.07	0.07	-0.17
18875.2	9.41	9.53	9.55	9.96	9.53	9.6	9.61	9.8	0.12	0.07	0.06	-0.16
18753.4	9.41	9.52	9.55	9.96	9.53	9.6	9.61	9.8	0.12	0.08	0.06	-0.16
18585.2	9.41	9.52	9.54	9.95	9.53	9.59	9.61	9.78	0.12	0.07	0.07	-0.17
18520.2	9.41	9.52	9.54	9.94	9.52	9.59	9.61	9.78	0.11	0.07	0.07	-0.16
18395.2	9.4	9.52	9.54	9.92	9.52	9.59	9.6	9.76	0.12	0.07	0.06	-0.16
18285.92	9.4	9.51	9.54	9.9	9.52	9.59	9.6	9.75	0.12	0.08	0.06	-0.15
18033.9	9.39	9.51	9.53	9.89	9.51	9.58	9.59	9.74	0.12	0.07	0.06	-0.15
17844.38	9.39	9.5	9.52	9.85	9.51	9.57	9.59	9.72	0.12	0.07	0.07	-0.13
17809.31	9.39	9.5	9.52	9.85	9.51	9.57	9.58	9.72	0.12	0.07	0.06	-0.13
17509.3	9.39	9.49	9.52	9.84	9.5	9.57	9.58	9.71	0.11	0.08	0.06	-0.13
17334.3	9.38	9.49	9.51	9.83	9.5	9.56	9.57	9.7	0.12	0.07	0.06	-0.13
17283.57	9.38	9.49	9.51	9.83	9.5	9.56	9.57	9.7	0.12	0.07	0.06	-0.13
17201.69 OR 104S Bridge									0.13			
17140.25	9.38	9.49	9.51	9.81	9.5	9.56	9.57	9.69	0.12	0.07	0.06	-0.12
17100.25	9.38	9.49	9.51	9.81	9.5	9.56	9.57	9.69	0.12	0.07	0.06	-0.12
16970.2	9.38	9.49	9.51	9.8	9.5	9.56	9.57	9.68	0.12	0.07	0.06	-0.12
16546.2	9.38	9.48	9.5	9.79	9.5	9.56	9.57	9.67	0.12	0.08	0.07	-0.12
16424.2	9.38	9.48	9.5	9.78	9.5	9.56	9.57	9.67	0.12	0.08	0.07	-0.11
16365.2	9.38	9.48	9.5	9.78	9.5	9.56	9.57	9.67	0.12	0.08	0.07	-0.11
16288.5	9.38	9.48	9.5	9.77	9.5	9.55	9.57	9.66	0.12	0.07	0.07	-0.11
16162.3	9.37	9.48	9.5	9.77	9.5	9.55	9.56	9.66	0.13	0.07	0.06	-0.11
16012.3	9.37	9.48	9.5	9.76	9.5	9.55	9.56	9.65	0.13	0.07	0.06	-0.11
15803.9	9.37	9.48	9.5	9.76	9.5	9.55	9.56	9.65	0.13	0.07	0.06	-0.11
15637.3	9.37	9.47	9.5	9.75	9.5	9.55	9.56	9.64	0.13	0.08	0.06	-0.11
15517.3	9.37	9.47	9.49	9.75	9.5	9.55	9.56	9.64	0.13	0.08	0.07	-0.11
15415.5	9.37	9.47	9.49	9.75	9.5	9.55	9.56	9.64	0.13	0.08	0.07	-0.11
15305.3	9.37	9.47	9.49	9.75	9.5	9.55	9.56	9.64	0.13	0.08	0.07	-0.11
15178.3	9.37	9.47	9.49	9.74	9.5	9.55	9.56	9.63	0.13	0.08	0.07	-0.11
15005.4	9.37	9.47	9.49	9.74	9.5	9.54	9.55	9.63	0.13	0.07	0.06	-0.11
14793.2	9.37	9.46	9.49	9.73	9.5	9.54	9.55	9.62	0.13	0.08	0.06	-0.11
14653	9.37	9.46	9.48	9.73	9.5	9.54	9.55	9.62	0.13	0.08	0.07	-0.11
14489.3	9.37	9.46	9.48	9.72	9.5	9.54	9.55	9.61	0.13	0.08	0.07	-0.11
14396	9.37	9.46	9.48	9.72	9.5	9.54	9.55	9.61	0.13	0.08	0.07	-0.11
14310.6	9.37	9.46	9.48	9.72	9.5	9.54	9.55	9.61	0.13	0.08	0.07	-0.11
14179.2	9.36	9.46	9.48	9.71	9.5	9.54	9.54	9.61	0.14	0.08	0.06	-0.1

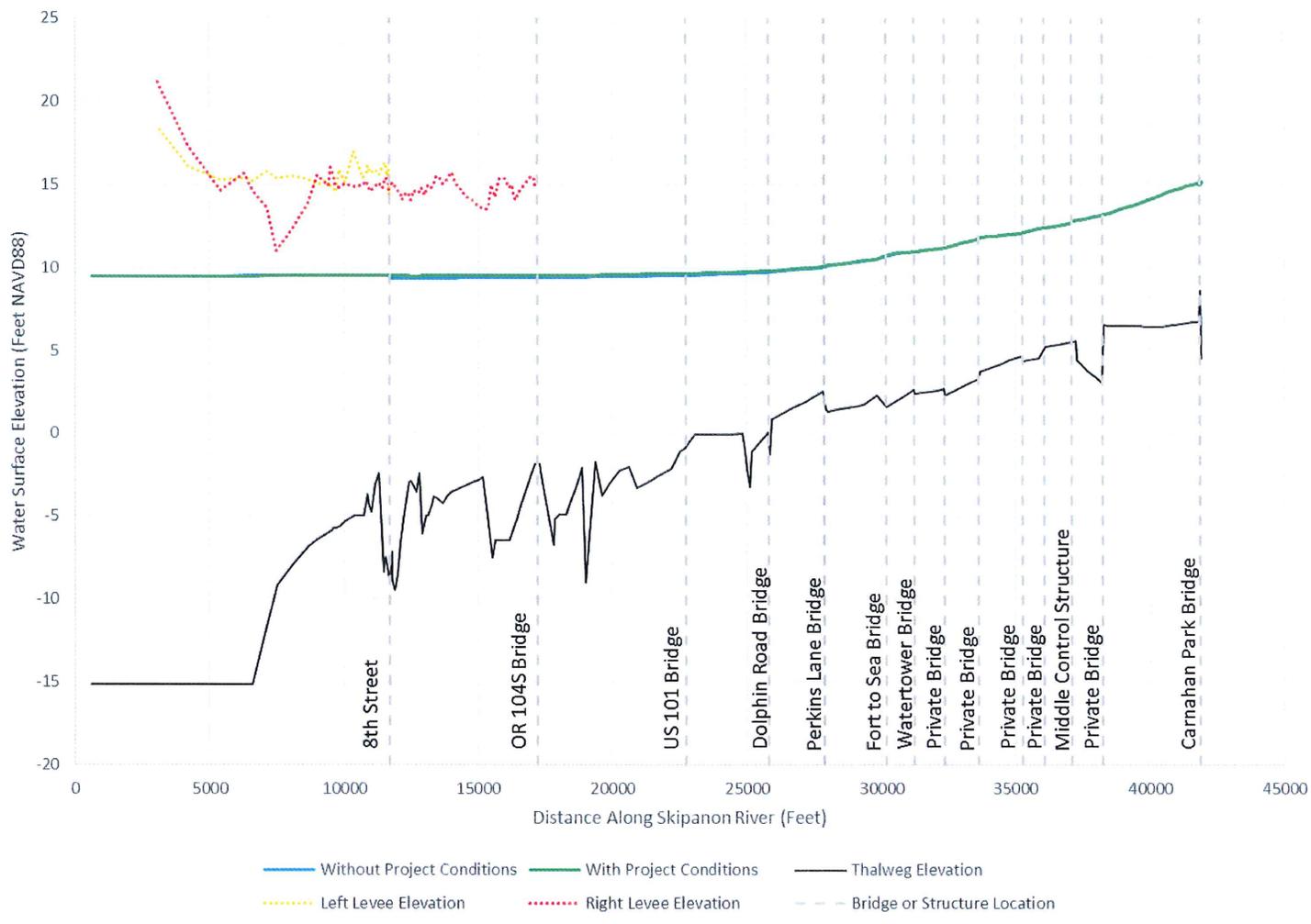
Tabular model results (continued)

River Station	Existing Conditions Maximum Water Surface Elevations (Feet NAVD88)				Alternative Conditions Maximum Water Surface Elevations (Feet NAVD88)				Differences between Alternative Conditions and Existing Conditions (Feet)			
	Normal Tide				Normal Tide				Normal Tide			
	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year
14019.3	9.36	9.46	9.48	9.71	9.5	9.53	9.54	9.6	0.14	0.07	0.06	-0.11
13819.3	9.36	9.45	9.47	9.71	9.5	9.53	9.54	9.6	0.14	0.08	0.07	-0.11
13691.3	9.36	9.45	9.47	9.71	9.5	9.53	9.54	9.6	0.14	0.08	0.07	-0.11
13564.3	9.36	9.45	9.47	9.7	9.5	9.53	9.54	9.59	0.14	0.08	0.07	-0.11
13464.3	9.36	9.45	9.47	9.7	9.5	9.53	9.54	9.59	0.14	0.08	0.07	-0.11
13344.3	9.36	9.45	9.47	9.7	9.5	9.53	9.53	9.59	0.14	0.08	0.06	-0.11
13251.7	9.36	9.45	9.47	9.7	9.49	9.53	9.53	9.59	0.13	0.08	0.06	-0.11
13140.6	9.36	9.44	9.46	9.7	9.49	9.52	9.53	9.59	0.13	0.08	0.07	-0.11
13038.3	9.36	9.44	9.46	9.7	9.49	9.52	9.53	9.58	0.13	0.08	0.07	-0.12
12903.3	9.35	9.44	9.46	9.69	9.49	9.52	9.52	9.58	0.14	0.08	0.06	-0.11
12803.3	9.35	9.44	9.46	9.69	9.48	9.51	9.52	9.58	0.13	0.07	0.06	-0.11
12703.3	9.35	9.44	9.46	9.68	9.48	9.51	9.52	9.57	0.13	0.07	0.06	-0.11
12603.3	9.35	9.43	9.45	9.68	9.48	9.51	9.52	9.57	0.13	0.08	0.07	-0.11
12503.3	9.35	9.43	9.45	9.68	9.48	9.51	9.52	9.57	0.13	0.08	0.07	-0.11
12403.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
12303.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
12203.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
12103.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
12003.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
11903.3	9.35	9.43	9.45	9.68	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.11
11853.3	9.35	9.43	9.45	9.67	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.1
11803.3	9.35	9.43	9.45	9.67	9.49	9.51	9.52	9.57	0.14	0.08	0.07	-0.1
11786.3	9.34	9.43	9.45	9.67	9.49	9.51	9.52	9.57	0.15	0.08	0.07	-0.1
11771.3	9.34	9.43	9.45	9.67	9.48	9.51	9.52	9.57	0.14	0.08	0.07	-0.1
11713.3 8th Street												
11709.3	9.52	9.53	9.53	9.57	9.49	9.52	9.52	9.56	-0.03	-0.01	-0.01	-0.01
11662.3	9.52	9.53	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	-0.01
11603.3	9.52	9.53	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	-0.01
11544.3	9.52	9.53	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	-0.01
11503.3	9.52	9.54	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.02	-0.01	-0.01
11453.3	9.52	9.53	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	-0.01
11303.3	9.52	9.53	9.53	9.57	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	-0.01
11153.3	9.52	9.53	9.53	9.56	9.5	9.52	9.52	9.56	-0.02	-0.01	-0.01	0
11003.3	9.52	9.53	9.53	9.56	9.5	9.51	9.52	9.56	-0.02	-0.02	-0.01	0
10903.3	9.52	9.53	9.53	9.56	9.5	9.51	9.52	9.55	-0.02	-0.02	-0.01	-0.01
10853.3	9.52	9.53	9.53	9.56	9.5	9.51	9.52	9.55	-0.02	-0.02	-0.01	-0.01
10713.3	9.52	9.53	9.53	9.55	9.5	9.51	9.52	9.55	-0.02	-0.02	-0.01	0
10373.3	9.51	9.52	9.52	9.55	9.5	9.51	9.52	9.55	-0.01	-0.01	0	0
10033.3	9.52	9.52	9.52	9.54	9.5	9.51	9.52	9.54	-0.02	-0.01	0	0
9833.3	9.52	9.52	9.52	9.54	9.51	9.51	9.52	9.54	-0.01	-0.01	0	0
9693.3	9.52	9.52	9.52	9.53	9.51	9.51	9.51	9.53	-0.01	-0.01	-0.01	0
9609.65	9.51	9.52	9.52	9.53	9.51	9.51	9.51	9.53	0	-0.01	-0.01	0
9523.3	9.51	9.52	9.52	9.53	9.51	9.51	9.51	9.53	0	-0.01	-0.01	0
9455.3	9.51	9.52	9.52	9.53	9.5	9.51	9.51	9.53	-0.01	-0.01	-0.01	0
9353.3	9.51	9.52	9.52	9.53	9.51	9.51	9.51	9.53	0	-0.01	-0.01	0
9013.3	9.51	9.51	9.51	9.52	9.5	9.5	9.51	9.52	-0.01	-0.01	0	0
8673.3	9.5	9.51	9.51	9.52	9.5	9.5	9.5	9.52	0	-0.01	-0.01	0

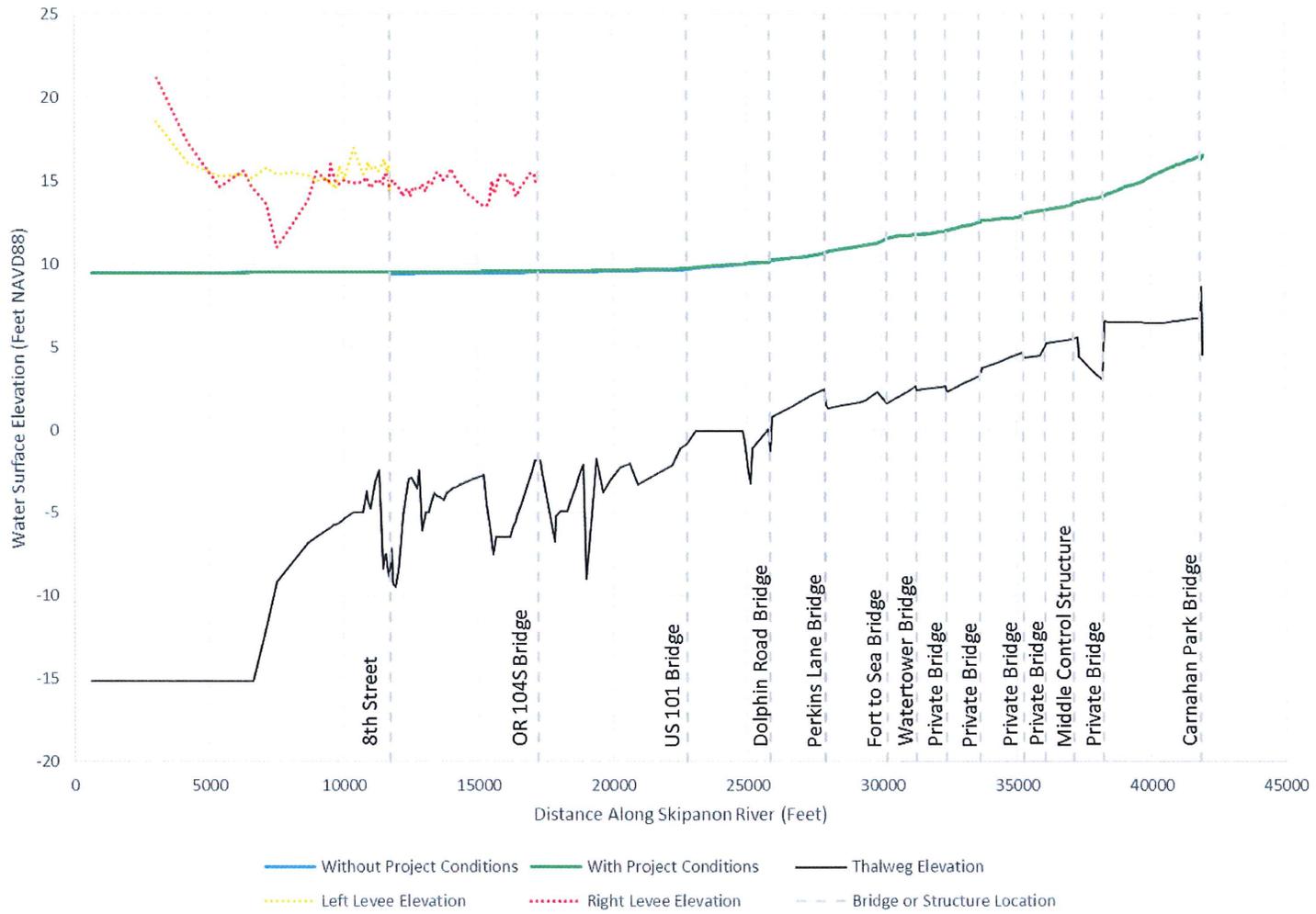
Tabular model results (continued)

River Station	Existing Conditions Maximum Water Surface Elevations (Feet NAVD88)				Alternative Conditions Maximum Water Surface Elevations (Feet NAVD88)				Differences between Alternative Conditions and Existing Conditions (Feet)			
	Normal Tide				Normal Tide				Normal Tide			
	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year	2-Year	10-Year	25-Year	100-Year
8093.3	9.5	9.5	9.51	9.51	9.5	9.5	9.5	9.52	0	0	-0.01	0.01
7513.3	9.5	9.5	9.5	9.51	9.49	9.5	9.5	9.51	-0.01	0	0	0
7143.3	9.49	9.49	9.49	9.5	9.49	9.49	9.49	9.5	0	0	0	0
6613.3	9.49	9.49	9.49	9.5	9.48	9.49	9.49	9.5	-0.01	0	0	0
6293.3	9.49	9.49	9.49	9.5	9.48	9.48	9.49	9.5	-0.01	-0.01	0	0
5413.3	9.47	9.47	9.48	9.48	9.47	9.47	9.47	9.49	0	0	-0.01	0.01
4213.3	9.47	9.47	9.47	9.48	9.47	9.47	9.47	9.48	0	0	0	0
3013.3	9.46	9.46	9.46	9.46	9.46	9.46	9.46	9.46	0	0	0	0
1813.3	9.45	9.45	9.45	9.45	9.45	9.45	9.45	9.45	0	0	0	0
613.3	9.44	9.44	9.44	9.44	9.44	9.44	9.44	9.44	0	0	0	0

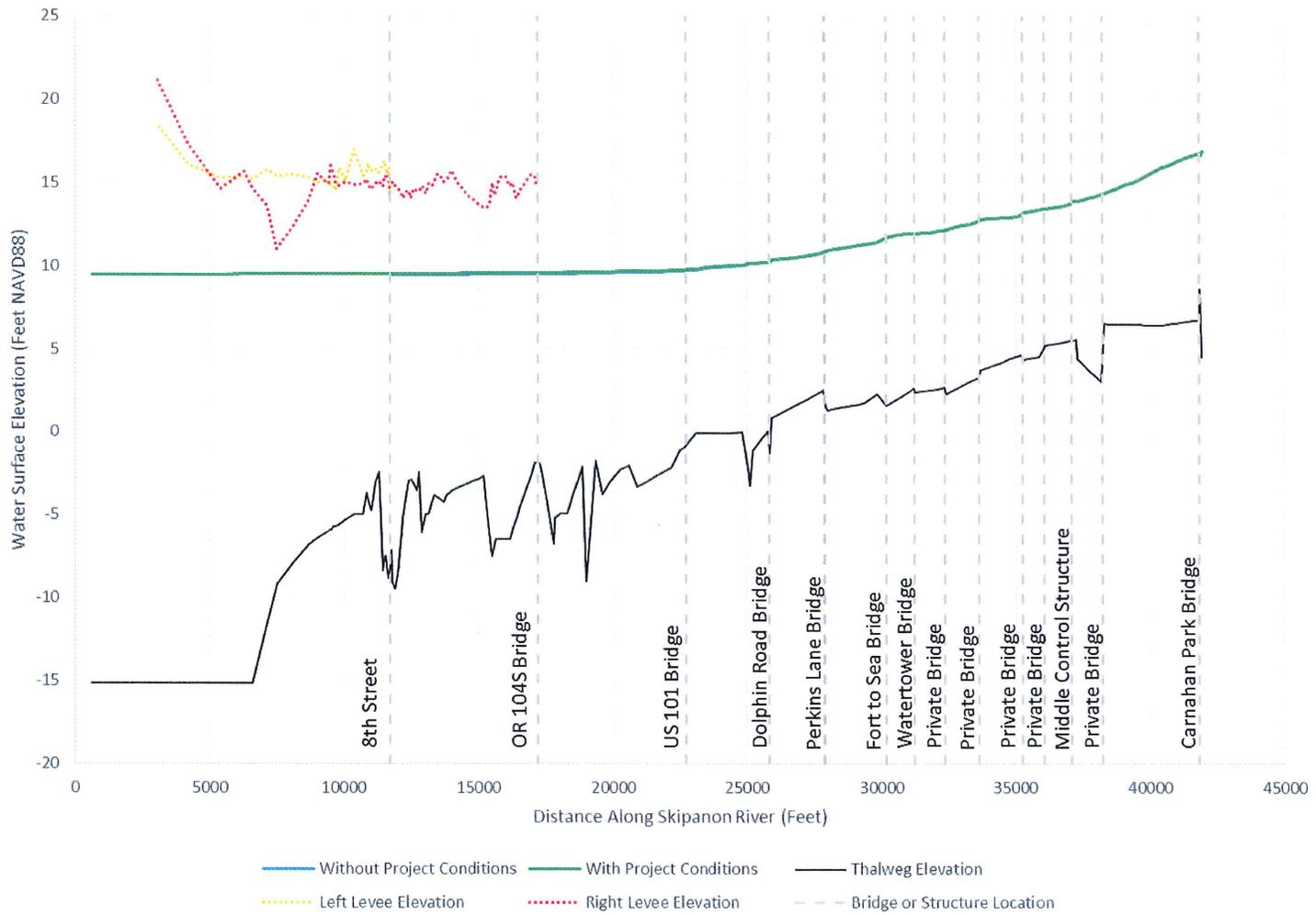
Normal Tide and 2-Year Return Period Flood Hydrograph



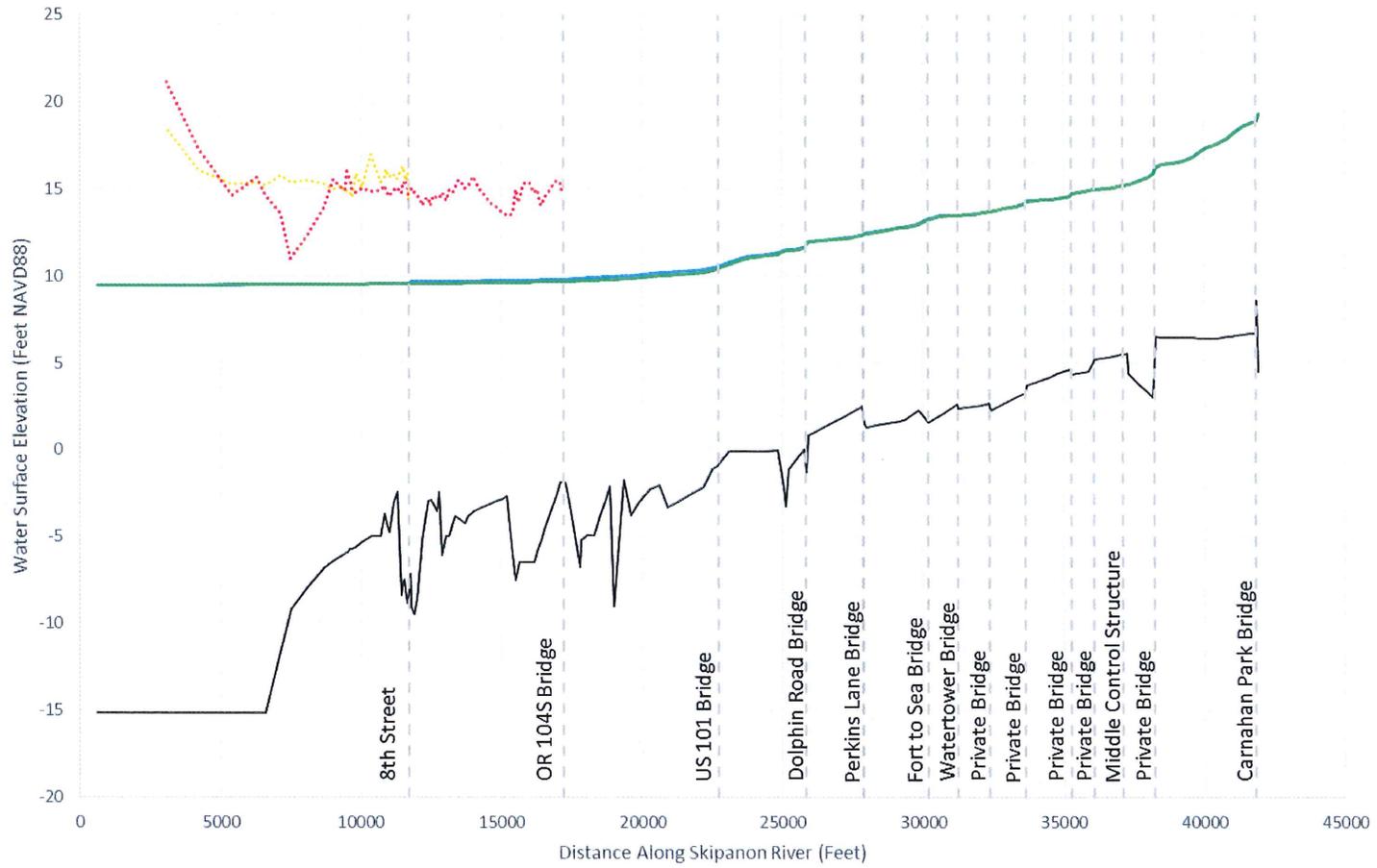
Normal Tide and 10-Year Return Period Flood Hydrograph



Normal Tide and 25-Year Return Period Flood Hydrograph

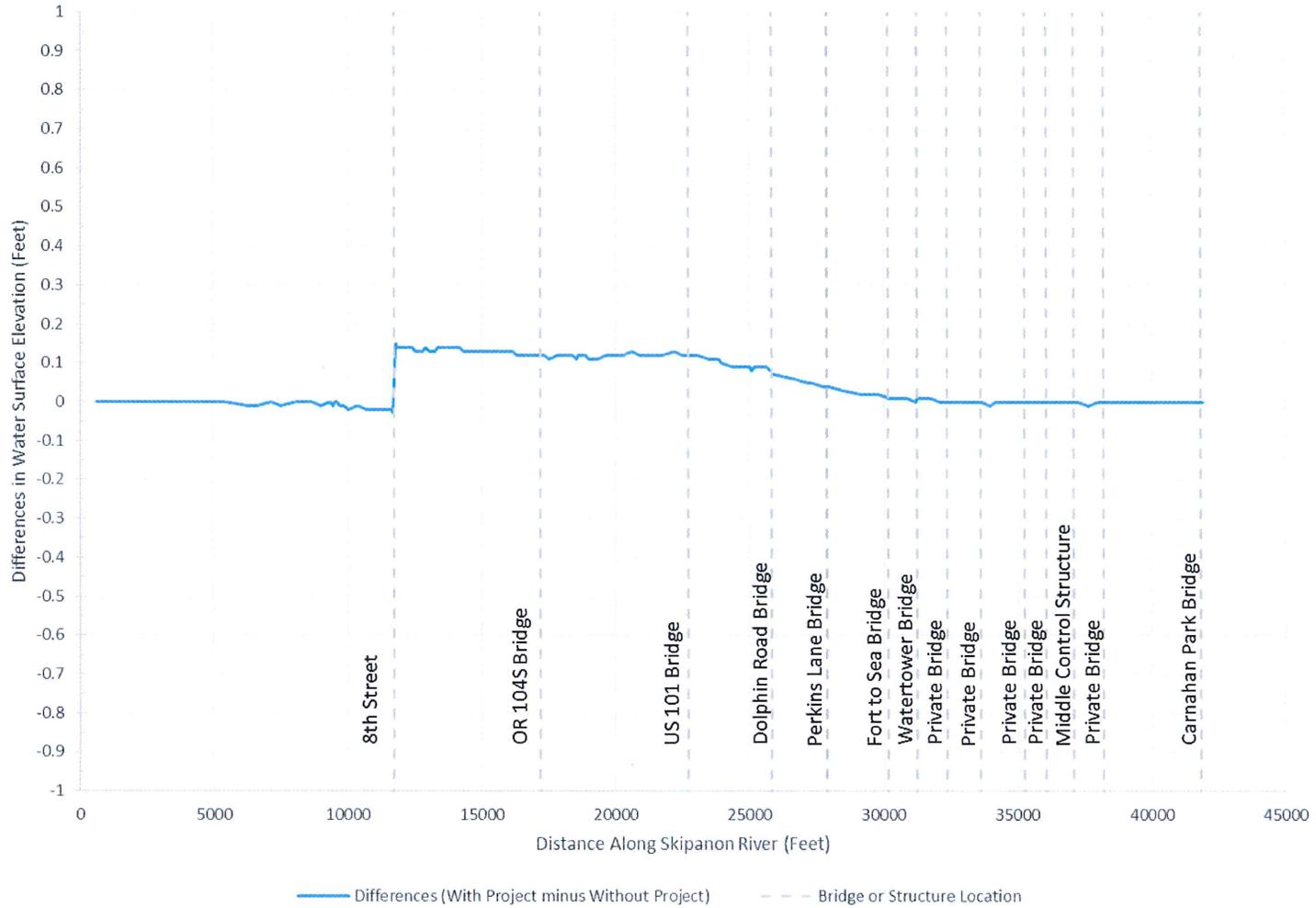


Normal Tide and 100-Year Return Period Flood Hydrograph

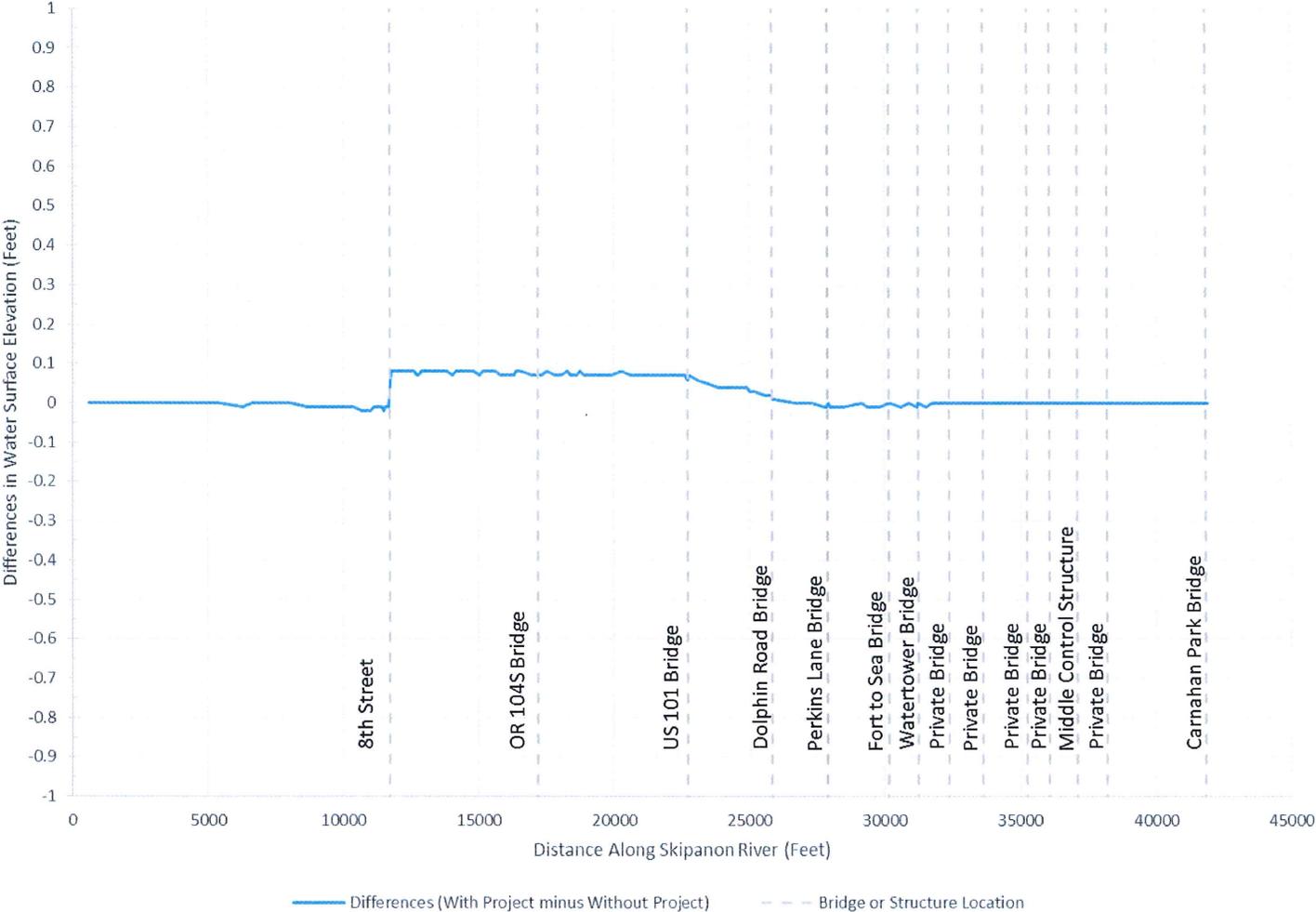


- Without Project Conditions    — With Project Conditions    — Thalweg Elevation
- ..... Left Levee Elevation    ..... Right Levee Elevation    - - - Bridge or Structure Location

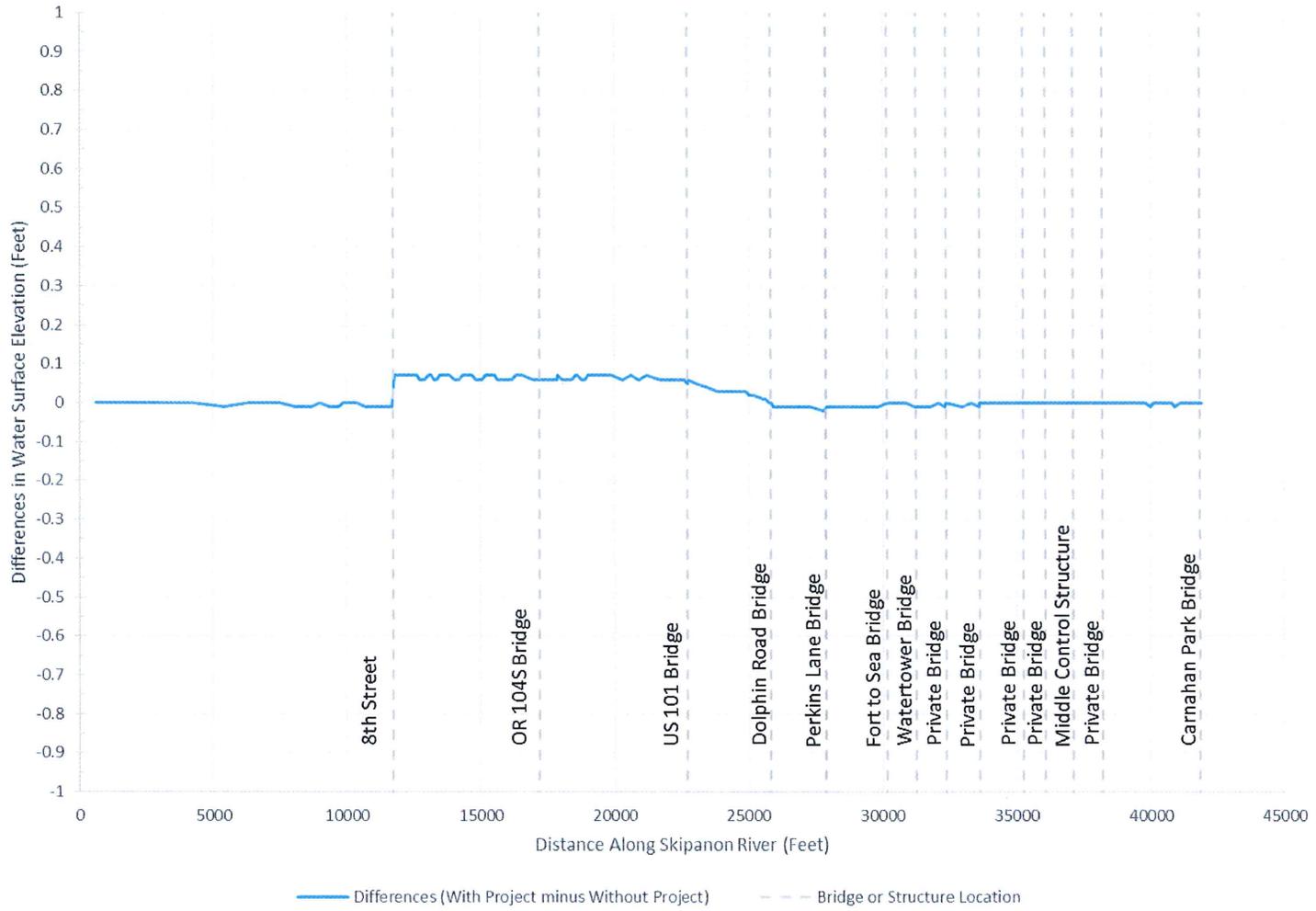
### Normal Tide and 2-Year Return Period Flood Hydrograph



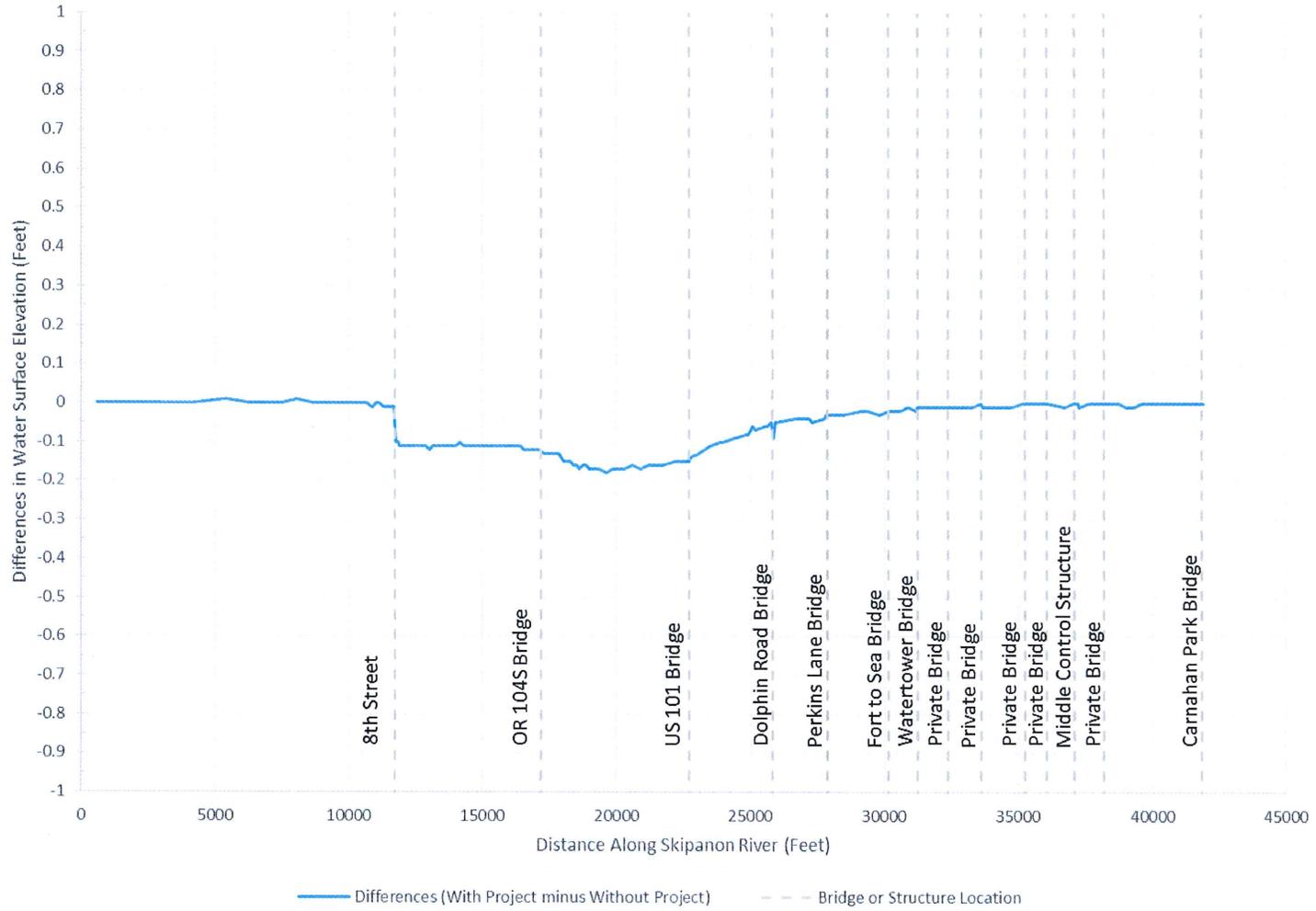
Normal Tide and 10-Year Return Period Flood Hydrograph



### Normal Tide and 25-Year Return Period Flood Hydrograph



Normal Tide and 100-Year Return Period Flood Hydrograph



Attachment C. Photo log of existing conditions during high flows and tides on the Skipanon River occurring on December 10, 2015



Figure C - 1. Looking at Clatsop County tax lot 401 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 2. Looking at Clatsop County tax lot 800 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 3. Looking at Clatsop County tax lots 800 and 900 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 4. Looking at Clatsop County tax lots 800 and 900 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 5. Looking at Clatsop County tax lot 900 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 6. Looking at Clatsop County tax lot 2100 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 7. Looking at Clatsop County tax lot 1604 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 8. Looking at Clatsop County tax lots 80000 and 90000 from the right bank of the Skipanon River on December 10, 2015.



Figure C - 9. Looking at Clatsop County tax lots 80000 and 90000 from right bank of the Skipanon River on December 10, 2015.



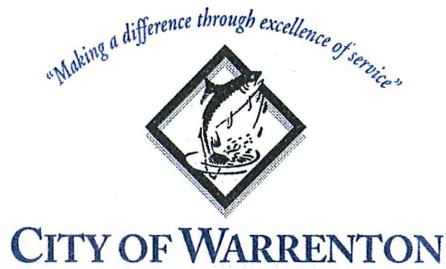
Figure C - 10. Looking at intersection of Perkins Lane and Dolphin Road on December 10, 2015.



Figure C - 11. Looking along Dolphin Road on December 10, 2015.



Figure C - 12 Looking along Perkins Lane towards bridge across the Skipanon River on December 10, 2015.



## AGENDA MEMORANDUM

TO: The Warrenton City Commission  
FROM: Linda Engbretson, CMC, City Recorder/Asst. to the City Manager  
DATE: May 10, 2016  
SUBJ: Ordinance No. 1202A; Adding Chapter 1.18 to the Warrenton  
Municipal Code Initiatives & Referendums

### SUMMARY

First reading of the "Fair Voting" Ordinance was conducted on April 26, 2016. It is presented for 2<sup>nd</sup> reading and adoption.

### RECOMMENDATION/SUGGESTED MOTION

*"I move to conduct the second reading, by title only, of Ordinance No. 1202A."*

Title: *"Ordinance No. 1202A; Adding Chapter 1.18 to the Warrenton Municipal Code-  
Initiatives and Referendums"*

"I move to adopt Ordinance No. 1202A."

### ALTERNATIVE

N/A

### FISCAL IMPACT

N/A

Approved by City Manager:

ORDINANCE NO. 1202A

INTRODUCED BY COMMISSIONER: Henry A. Balensifer III

ADDING CHAPTER 1.18 TO THE WARRENTON MUNICIPAL CODE  
INITIATIVES & REFERENDUMS

The City of Warrenton Ordains as follows:

Section 1. Chapter 1.18 of the Warrenton Municipal Code is hereby added to the Warrenton Municipal Code, to read as follows:

1.18.010 Approval by more than majority required for certain measures submitted to the people.

(1) Any measure that includes a proposed requirement for more than a majority of votes cast by the electorate to approve a change in law or government action shall become effective only if approved by not less than the same percentage of voters specified in the proposed voting requirement.

(2) For the purposes of this section, "measure" includes citizen initiatives and measures referred to the voters by the City Commission.

Section 2. This Ordinance shall become effective thirty days after its adoption by the Commission and approved by the Mayor.

ADOPTED by the City Commission of the City of Warrenton this \_\_\_\_ day of April, 2016.

First Reading: April 26, 2016

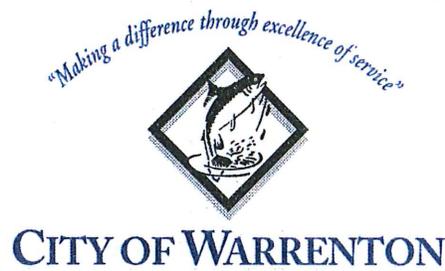
Second Reading: May 10, 2016

Approved

\_\_\_\_\_  
Mark Kujala, Mayor

Attest

\_\_\_\_\_  
Linda Engbretson, City Recorder



## AGENDA MEMORANDUM

TO: The Warrenton City Commission  
FROM: Linda Engbretson, CMC, City Recorder/Asst. to the City Manager  
DATE: May 10, 2016  
SUBJ: Ordinance No. 1203A; Repealing Ordinance 797A – 1987 Urban  
Renewal

### SUMMARY

September 17, 1986, the Warrenton City Commission adopted Ordinance No. 797A – Establishing an Urban Renewal Agency to Function in the City of Warrenton. Section 13 of that ordinance states that upon receipt and adoption of a proposed Urban Renewal Plan and report it would be referred to the voters. The voters of Warrenton defeated the measure in the March 1987 election; however, the ordinance was never repealed and was codified in the Municipal Code. Attached Ordinance No 1203A deletes the invalid 1986 references from the code. Ordinance No. 1104A adopted February 2007 will update the code.

### RECOMMENDATION/SUGGESTED MOTION

“ I move to conduct the 2<sup>nd</sup> reading, by title only, of Ordinance No. 1203A.”

Title: *“Ordinance No. 1203A, Repealing Ordinance No. 797A; Chapter 2.20 of the Warrenton Municipal Code.”*

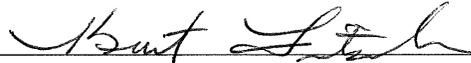
"I move to adopt Ordinance No. 1203A."

**ALTERNATIVE**

None recommended

**FISCAL IMPACT**

N/A

Approved by City Manager:  \_\_\_\_\_

All supporting documentation, i.e., maps, exhibits, etc., must be attached to this memorandum.

ORDINANCE NO. 1203A

Introduced by Commissioner:

Repealing Ordinance No. 797-A; Chapter 2.20.

Whereas, Ordinance No. 797-A; *Establishing an Urban Renewal Agency*, was referred to the voters in March 1987; and

Whereas, the measure to establish an Urban Renewal Agency was defeated in the March 1987 Election; however the ordinance is codified in the City's current Municipal Code, Chapter 2.20;

Whereas, Warrenton Municipal Code Chapter 2.20 is not valid;

Now, therefore, the City of Warrenton ordains as follows:

Chapter 2.20 of the Warrenton Municipal Code is hereby repealed.

Adopted by the City Commission this \_\_\_\_\_ day of May 2016.

First Reading: April 26, 2016  
Second Reading: May 10, 2016

APPROVED

\_\_\_\_\_  
Mark Kujala, Mayor

ATTEST

\_\_\_\_\_  
Linda Engbretson, CMC, City Recorder