Three Rivers Levee Improvement Authority
Adequate Progress Finding
towards an
Urban Level of Flood Protection Report
for the
Reclamation District 784 Levee System

June 2016

Introduction

In 2007, the California Legislature passed Senate Bill (SB) 5 which requires all cities and counties within the Sacramento-San Joaquin Valley to make findings related to an urban level of flood protection for urban and urbanizing lands within a flood hazard zone. The bill defined "urban level of flood protection" as the level of flood protection that is necessary to withstand flooding that has a 1-in-200 chance of occurring in any given year using criteria consistent with, or developed by, the Department of Water Resources (DWR). Further, the legislation required a city or county, prior to making any number of land use decisions beginning July 2, 2016, to demonstrate that there is an urban level of flood protection, impose conditions that will achieve the urban level of flood protection, or demonstrate adequate progress toward providing an urban level of flood protection. Urban Level of Flood Protection Criteria (ULOP Criteria), implementation guidance issued in November 2013 by the State, requires that these findings be based on substantial evidence in the record.

To assist Yuba County in its land use decisions the Three Rivers Levee Improvement Authority (TRLIA) is making an Adequate Progress Finding (APF) towards an Urban Level of Flood Protection for the Reclamation District (RD) 784 Levee System. This finding is based on the following:

- An Engineer's Report, *Substantial Evidence Engineer's Report, Urban Level of Protection, RD 784 Levee System (Engineer's Report)*, dated May 2016, prepared by TRLIA documenting the data and analyses for demonstrating that the RD 784 Urban Levee System for the most part is able to withstand flooding from a 1-in-200-year flood event in accordance with the State of California's Urban Levee Design Criteria (ULDC), issued in May 2012
- A statement by Mr. Richard Reinhardt, P.E. found in the *Engineer's Report* certifying that the RD 784 Levee System is expected to be able to withstand flooding that has a 1-in-200 chance of occurring in any given year upon completion of all flood system improvements.
- For portions of the RD 784 levee system that do not currently meet ULDC, there are plans for providing an urban level of flood protection by July 2025.
- A report by Mr. Donald Babbitt, P.E., Mr. Faiz Makdisi, P.E., and Mr. David Williams, P.E., the Independent Panel of Experts, on the Engineer's Report prepared on behalf of TRLIA.
- A response by Mr. Ric Reinhardt, P.E. to the comments from the Independent Panel of Experts.
- Any additional data and information that cities or counties use to make an APF.

Description of the Urban Area

The RD 784 urban area is south of Marysville, California in southwestern Yuba County and is bounded by the Yuba River to the north, the Western Pacific Interceptor Canal (WPIC) to the east, the Bear River to the south, and the Feather River to the west and includes the residential communities of Linda, Olivehurst, Arboga, and Plumas Lake. The RD 784 urban area within these boundaries encompasses approximately 35,000 acres with an estimated population of 40,000 people. The area is shown on Figure 1. There are approximately 11,766 residential structures, 486 commercial/industrial structures, 11 schools, and 74 public buildings with an estimated structure value of over $1 billion. These numbers include 14 special needs facilities that house 294 clients and 692 people with visual, hearing, or mental impairments. Critical infrastructure includes Highways 65 and 70, 10 internal drainage pump stations, 2 waste water treatment plants, 20 sewer lift stations, 8 potable water treatment facilities, 2 police stations, and 4 fire stations. The area also includes approximately 70 acres of landscaped park land and over 15,000 acres of prime agricultural land.

Description of the Flood Protection System

State Plan of Flood Control (SPFC) Project Levees exist along all of the water courses identified above to provide protection to the urban area of RD 784.

The RD 784 Levee System consists of the following key features:

- 29.9 miles of levees
- Two closure structures
- Five pumping stations (PS) at the levee line of protection (PS 9, PS 3, PS 2, PS 6 and Olivehurst Detention Basin (ODB))
- Three gravity drains at the levee line of protection (PS 2, PS 6 and ODB)
- Five interior pumping stations (PS 1, PS 4, PS 5, PS 7, and PS 8)
- Appurtenant drainage facilities (62 Miles of Drainage Channels and 9 Detention Basins)
- An interim 100-year flood protection project in the Goldfields with a sustainable 200-year Goldfields Setback Levee Project in the Final Design Phase and scheduled to be complete by 2025

The SPFC Project Levees were constructed by the United States Army Corps of Engineers (USACE) in the mid-20th Century. Starting in 2004 TRLIA initiated designs and projects to increase the reliability of the RD 784 Levee System in order to provide 200-year flood protection.

TRLIA has completed the alterations described below (See Plate 1 and Figure 1):

- **Phase 1** – Construct a 50-foot-deep slurry cutoff wall in the south levee of the Yuba River between Highway 70 and the 1986 levee breach. Phase 1 was completed in November 2004. **This reach meets the ULDC with exception.**
- **Phase 2** – Raise and strengthen portions of the north levee of the Bear River and the west WPIC levee through the construction of cutoff walls and seepage berms; construct a seepage berm along the south levee of the Yuba River east of Shad Road and west of the UPRR; construct a new replacement Pump Station No. 6 on the Bear River north levee just west of Highway 70; and construct a detention basin, pump station, and ring levee near Olivehurst. Phase 2 construction was completed in 2006. **With the exception of the WPIC, see below, these reaches meet the ULDC with exception.**
- **Phase 3** – Construct a two mile setback levee north of the Bear River from the joining of the Bear River Levee with the east levee of the Feather River to the point where the Bear River Phase 2 alterations began. Phase 3 construction was completed in 2006. **This reach meets the ULDC with exception.**
- **Phase 4** – Strengthen the south levee of the Yuba River west of the Western Pacific Railroad crossing (Project Levee Mile (PLM) 0.0 to PLM 0.3) by rebuilding of the crown of the levee; strengthen the south levee of the Yuba River between the UPRR (PLM 0.9) and the Yuba Gold Fields (PLM 6.1) through the construction of seepage berms and cutoff walls and geometry corrections; and improve the east levee of the Feather River between the south levee of the Yuba River tie-in (PLM 26.1) and the Phase 3 Bear River levee tie-in (PLM 13.3) through the

construction of relief wells, seepage and stability berms, and cutoff walls. The Phase 4 work was completed as follows:

- Yuba River South Levee from the UPRR (PLM 0.9) to Simpson Lane (PLM 2.2) strengthening through construction of a cutoff wall was completed in 2006. **This reach meets the ULDC with exception.**
- Designs for strengthening by installing relief wells, constructing seepage and stability berms, constructing cutoff walls, and geometry corrections of the south levee of the Yuba River from PLM 0.0 to 0.3, east levee of the Feather River from the south levee of the Yuba River tie-in to about one mile north of Murphy Road (PLM 26.1 to PLM 23.4), (Feather Segment 3) and east levee of the Feather River south of Star Bend (PLM 17.2 to PLM 13.3) (Feather Segment 1) were completed in May 2007. Construction of these levee strengthening measures was completed in 2008. Completion of erosion protection at the Erosion Site 2 in Feather Segment 3 was completed in 2009. **These reaches meet the ULDC with exception.**
- Designs for a setback levee to replace the east levee of the Feather River from about one mile north of Murphy Road (PLM 23.4) to Star Bend (PLM 17.2) (Feather Segment 2) were initiated in April 2007 and completed in February 2008. Construction of the setback levee started in the summer of 2008 and was completed in 2009. **This reach meets the ULDC with exception.**
- Design for strengthening by constructing seepage berms, constructing cutoff walls, and geometry corrections of the Yuba River South Levee from Simpson Lane (PLM 2.2) to the Goldfields (PLM 6.1) was completed in June 2010. Construction of the levee strengthening measures was completed in 2012. **This reach meets the ULDC with exception.**

ULDC Exceptions – As indicated above, most of the RD 784 levee system reaches meet the ULDC, but do so with some exceptions. The exceptions are not significant and are explained in greater detail in the Engineer's Report. These exceptions are listed below.

- Soil Sampling, Testing, and Logging (ULDC Section 7.3) – Even though the number of explorations for the levee system does not exactly match the specific USACE SPK SOP; the explorations in total give a very good understanding of levee and foundation conditions. Preliminary explorations were used to direct subsequent explorations to fill in data gaps and to gather specific information to guide final evaluations and designs. The soil sampling, testing and logging for the RD 784 System is more than adequate to support any findings regarding a ULOP for all segments of the RD 784 levee system. The Consultants performing these ULDC evaluations have provided statements as to the adequacy of the exploration programs for use in performing these evaluations. These statements are provided in Attachment A to the Engineer's Report. Soil sampling, testing, and logging that was done was generally performed following the ULDC guidance. Therefore, geotechnical investigations were generally performed following the ULDC guidance and meet ULDC 7.3 for soil sampling, testing, and logging through exception.

- Underseepage Stability for Intermittently Loaded Levees (ULDC Section 7.5) – The DWR ULE determined that exit gradients at an offset from the levee toe exceeded criteria at DWR ULE Section 1511+75. This offset is in a low area in the middle of an agricultural field. USACE and TRLIA have installed relief wells in this reach of levee which in TRLIA's opinion relieve excess foundation pressures. TRLIA has also installed a piezometer at this section to monitor

foundation pressures during a flood event. The recently updated Combined O&M Manual for the RD 784 levee system includes monitoring of this piezometer during flood events and trigger values to initiate emergency actions, should pressures in the foundation exceed certain critical values. With installation of the monitoring piezometer and guidance for monitoring in the revised O&M Manual, the Feather River East Levee Segment 1 meets ULDC 7.5 for underseepage through exception.

- Levee Geometry (ULDC Section 7.8) – Several sections in the levee system do not quite attain the crown width required by the ULDC or have levee slopes that exceed criteria. All of these sections have stability analyses near these criteria exceedance sections which indicate stability for the levee section with the existing levee geometry. There are no reported maintenance or stability problems near these sections. Sections with reduced width are minor variations and are in reaches where other geometry features allow traffic to pass on the levee even with the reduced width. With the analysis indicating levee stability with the current geometry and the presence of other geometry features which ameliorate the reduced crown widths, these sections are considered to meet ULDC 7.8 for geometry through exception.

ULDC Exceedances – The DWR Urban Levee Evaluation (ULE) of the RD 784 Levee System was completed in 2014 and did find some locations which did not meet the ULDC along the WPIC West Levee and at one spot on the Feather East Levee in Segment 1. The DWR ULE also identified a unique condition along the Yuba South Levee for which it also recommended remediation. TRLIA conducted its own ULDC evaluation of the RD 784 Urban Levee System and its findings were in general agreement with the DWR ULE. TRLIA has identified that the Goldfields do not provide the 200-year protection at the end of the SPFC required for an urban area. Remediation for these locations is described below:

- Design was completed for remediation of a unique condition identified at the 86 Break Site on the Yuba South Levee in July 2014. Construction of the remediation was completed in August 2015. **This effort ensures that the Yuba River South Levee from Highway 70 to the UPRR meets the ULDC with exception.**
- Construction of an erosion control seepage berm at the one location on the Feather River East Levee Segment 1 was completed in May 2015. **This effort ensures that the Feather River East Levee Segment 1 meets the ULDC with exception.**
- Design to remediate identified reaches along the WPIC West Levee which do not meet the ULDC are complete. Construction is planned to begin in the summer of 2016 with construction completion in 2017. **A plan is underway for the WPIC West Levee to meet the ULDC with exception by 2025.**
- Goldfields – TRLIA identified a flood threat from the Goldfields in 2011. An interim 100-Year Flood Protection Project is scheduled for completion in 2016. A 200-Year Goldfields Setback Levee was selected as an Urban Flood Risk Reduction (UFRR) Project in 2015. Final Design is scheduled to begin in 2016 and project construction to begin in 2019 with construction completion in 2021. **A plan is underway for the Goldfields to meet the ULDC by 2025.**

Compliance with the Urban Levee Design Criteria

TRLIA's adequate progress finding towards an urban level of flood protection for the RD 784 Levee System must be supported by substantial evidence in the record to demonstrate that the RD 784 Levee System will be able to withstand flooding from a 1-in-200-year flood event by 2025. This substantial evidence is found in the *Substantial Evidence Engineer's Report, Urban Level of Protection, RD 784 Levee System*, dated May 2016. This report, referred to as the Engineer's Report, demonstrates compliance with the State of California's *Urban Levee Design Criteria* (ULDC) with some exceptions. As documented in the Engineer's Report, and certified by a California registered professional engineer, most of the levee segments in the RD 784 Levee System meet the ULDC with exception and are expected to withstand flooding from a 1-in-200-year flood event. Two of the RD 784 Levee System segments, the WPIC West Levee and the Goldfields, do not currently meet the ULDC but adequate progress has been made toward remediating these two locations so that the ULDC will be met once all proposed flood remediation features are constructed.

Adequate Progress Finding

TRLIA has reviewed the RD 784 Engineer's Report and its appendices, and the opinion of the Independent Panel of Experts and finds that there is substantial evidence in the record to support the TRLIA Program Engineer's finding that the RD 784 Levee System has made adequate progress towards providing protection from the 1-in-200 year flood event upon completion of all flood system improvements.

In order to make this finding of adequate progress towards an urban level of protection TRLIA is relying on the following information regarding the future plans for providing urban (200-year) flood protection along the WPIC West Levee and the Goldfields by 2025.

WPIC West Levee Standard Project

Project Scope – As stated above several reaches of the WPIC West Levee were found to not meet the ULDC for underseepage and slope stability. Additional geotechnical explorations and testing was accomplished in 2013 and 2014. An Alternatives Analysis was completed in 2014. The following remediation features were selected for final design to remediate the locations that did not meet the ULDC and provide the scope for the WPIC West Levee Standard Project:

1. Station 9+50 to 24+50; 70-Ft-Deep Deep Mix Method Cutoff Wall
2. Station 115+00 to 119+00; Fill Landside Low Area (Minimum of 3 Feet)
3. Station 135+00 to 309+00; Landside Levee Toe All-Weather Maintenance Road
4. Station 144+50 to 167+50; 50-Ft-Deep Conventional Cutoff Wall
5. Station 190+10 to 216+00; Drained Berm, 2.5-Feet High by 18-Feet Wide in Conjunction with the Toe Maintenance Road
6. Station 238+50 to 248+50; 50-Ft-Deep Conventional Cutoff Wall
7. Station 259+00 to 278+00; 10-Foot-Tall by 10-Foot-Wide Landside Stability Berm
8. Station 286+00 to 300+00; Fill Landside Low Area (Minimum of 3.5 Feet)

Schedule – Final design is scheduled to complete in 2016 and the remediation features are scheduled to begin construction in 2016 and complete construction in 2017. Permitting is underway and negotiations for required real estate for construction are ongoing. The following are current milestones for the WPIC West Levee Standard Project

Complete Design	March 2016
Complete Environmental Permitting	May 2016
USACE Section 408 Permits Issued	May 2016
CVFPB Permits Issued	May 2016
Real Estate Access for Construction Obtained	June 2016
Award Construction Contract	June 2016
Initiate Construction	July 2016
Complete Construction	October 2017

Cost – The current cost estimate for the WPIC West Levee Standard Project is provided below:

Real Estate	$ 932,000
Permitting & Environmental Documentation	$ 759,000
Design	$ 1,421,000
Construction	$ 11,167,000
Construction Management	$ 1,501,000
TOTAL	**$ 15,780,000**

Finance Plan – TRLIA has developed a finance plan for completion of all efforts for the RD 784 urban levee system including the WPIC West Levee Standard Project and the Goldfields 200-Year Project. Completion of these projects will provide 200-year protection to the RD 784 urban levee system. The finance plan for completion of all TRLIA efforts is attached to this APF Report as Attachment 1.

Goldfields 200-Year Project

Project Scope – As noted earlier, TRLIA has identified a flood risk from the Goldfields. The SPFC project levees tie into the Goldfields under the assumption that the Goldfields serve as "high ground" for the system. TRLIA's analysis indicate that the Goldfields cannot be reliably relied on to serve as high ground. TRLIA's analyses show that contrary to early reconnaissance findings, there is a risk of to the SPFC from flanking for floods more frequent than the 100-year flood. This is a result of landform changes made by aggregate miners and a gold dredge; and also from a more detailed understanding of the rate of erosion of the Yuba River south bank dredge tailings embankments. This flood risk would flood areas that were thought to have 200-year protection and decrease the flood inundation benefits associated with the SPFC. It would also result in FEMA having to map residual flood plains in the RD 784 urban area along with these residual flooded areas having to purchase flood insurance. With this better understanding of the flood threat from the Goldfields, TRLIA began to take steps to improve the flood protection from the Goldfields.

In 2011, TRLIA used local funds to enlarge critical points in the Goldfields dredge tailings embankments to improve flood protection. TRLIA received a Proposition 13 Grant from DWR in October 2012 to perform a Feasibility Study to identify a project that would provide 200-year protection from the Goldfields. The *Goldfields Flood Protection Feasibility Study Initial Report* (Initial Report), which identified a preferred plan for providing 100-year protection, was submitted to DWR on July 18, 2013. Construction of a Goldfields Interim 100-Year Project using local funds will complete in 2016.

The Feasibility Study formulation for a 200-year project was initiated in 2013. The Feasibility Study evaluated four alternative embankments in proximity to the Goldfields to provide sustainable 200-year flood protection from the Goldfields. Three of these alternatives were within the Goldfields and were strengthen in place alternatives of the existing dredge tailings embankments. The strengthening would consist of using the existing dredge tailings material to enlarge the embankments to a geometry to prevent large flows from traversing the Goldfields. The fourth alternative was a standard levee clay embankment with a landside seepage berm along an alignment just south of the Goldfields. Costs for these alternatives ranged from $10M to $40M. The *Goldfields Flood Risk Reduction Feasibility Study Final Report: 200-Year Project Selection* dated September 2015 was submitted to DWR in September 2015 and selected fourth alternative as the proposed plan for providing 200-year protection from the Goldfields.

The proposed plan is a levee south of the Goldfields that involves constructing a standard clay material levee embankment that would intercept flood flows from the Goldfields and redirect them to the Yuba River Floodplain west of the Goldfields. The proposed plan footprint would be approximately 3.5 miles long and encompass approximately 199 acres. It would begin at the northern terminus of the SPFC and extend directly east along and below the southern border of the Goldfields, then northeast along the north side of Hammonton-Smartville Road before terminating east of Doolittle Drive. The levee would have a 20-foot-wide crest, 3:1 waterside (north side) and landside (south side) slopes, and a 5-foot-high by 300-foot-wide seepage berm at the landside toe to address seepage and stability issues. A compacted surface patrol road, approximately 16 feet wide, would also be included along the crest of the levee.

Implementing the proposed plan would involve relocating or realigning portions of two irrigation canals and constructing an irrigation crossing at Hammonton Road and road crossings at Hammonton Road and at the entrance road to the Teichert Marysville Aggregate Processing Facility. Currently, a local irrigation canal runs along the south side of the Goldfields parallel to the southwestern border of the Goldfields. At the west end of the proposed plan alignment, approximately 12,400 linear feet of this canal would be relocated to just past the landside toe of the seepage berm on the south side of the proposed levee. This canal would be 6 feet deep and have a 10-foot bottom width and 3:1 side slopes. At the eastern end of the proposed plan alignment, approximately 1,500 linear feet of the Yuba-Brophy Canal would be realigned to the waterside of the proposed levee to maintain canal connection and a toe ditch would be constructed along the landside toe of the seepage berm to direct drainage from the south side of the levee to the nearest local drainage collector. The realigned canal segment would be 10 feet deep and have a 40-foot bottom width and 3:1 side slopes.

Where the proposed levee would cross Hammonton Road and the entrance road to the Teichert Marysville Processing Facility, these sections of roadway would be replaced by ramps up and over the levee with asphalt roadways on top of the ramps. The roadway crossings would consist of aggregate base and asphalt and would be 24 feet wide with 4-foot-wide rock shoulders. The irrigation canal that parallels Hammonton Road would be replaced by a culvert at the base of the levee. The culvert would

be composed of a 96-inch reinforced-concrete pipe with shutoff gates at each end of the pipe that could be closed during flood events.

Schedule – The proposed plan has been selected as a DWR UFRR Project and funding agreement negotiations are underway with the State. Once this agreement is signed, final environmental studies, real estate actions, and design can begin with anticipation of construction completing in 2021. The following are current milestones for the Goldfields 200-Year Project

Sign Funding Agreement	October 2016
Complete Design	December 2017
Complete Environmental Permitting	December 2017
USACE Section 408 Permits Issued	May 2019
CVFPB Permits Issued	May 2019
Real Estate Access for Construction Obtained	July 2018
Award Construction Contract	June 2019
Initiate Construction	July 2019
Complete Construction	October 2021

Cost – The current cost estimate for the Goldfields 200-Year Project is provided below:

Real Estate	$ 7,791,600
Permitting & Environmental Documentation	$ 1,792,500
Design	$ 5,504,900
Construction	$ 22,774,400
Construction Management	$ 2,277,400
Project Management	$ 1,125,000
TOTAL	**$ 41,265,800**

Finance Plan – TRLIA has developed a finance plan for completion of all efforts for the RD 784 urban levee system including the WPIC West Levee Standard Project and the Goldfields 200-Year Project. Completion of these projects will provide 200-year protection to the RD 784 urban levee system. The finance plan for completion of all TRLIA projects is attached to this APF Report as Attachment 1.

Adequate Progress Effective Period & Periodic Reviews

This APF will be used for subsequent land use approvals until the findings expire or are superseded, as described in the ULOP Criteria. Expiration factors are summarized below.

- Adequate Progress Findings
    - This initial finding lasts for no more than 10 years.
    - To continue to rely on the initial APF, the most recent annual progress report must demonstrate adequate progress.

Annual Adequate Progress Report

TRLIA will make annual progress reports as required by GC §65007(a)(5). TRLIA proposes to complete the first annual report by June 30, 2017 and then annually thereafter.

ATTACHMENTS

Attachment 1 – TRLIA Finance Plan May 2016

ATTACHMENT 1

Adequate Progress Financial Plan

for the

Reclamation District 784 Levee System

Three Rivers Levee Improvement Authority
Urban Level of Flood Protection
Adequate Progress Financial Plan
for the
Reclamation District 784 Levee System

FINAL

May 27, 2016

Prepared by

Larsen Wurzel & Associates, Inc.

Background

Larsen Wurzel & Associates, Inc. (LWA) has been requested by the Three Rivers Levee Improvement Authority (TRLIA) to prepare this document in support of the Urban Level of Protection (ULOP) Adequate Progress Finding to be made by Yuba County for the RD 784 Levee System.

In April 2004, TRLIA was established as a Joint Powers Authority by Yuba County and RD 784. TRLIA's goal is to reduce the risk of flooding in South Yuba County through a group of projects designed to provide 200 year flood protection to the RD 784 Urban Basin by improving the SPFC Project Levees which protect the RD 784 urban area. TRLIA has identified a levee improvement program consisting of 8 projects. The first six projects have been completed, the seventh and eighth projects, as further described within this report are fully funded and advancing toward completion. This report describes the financial arrangements that are in place to support the completion of the levee system.

TRLIA's levee program has been primarily funded through a combination of State and local funding. State funding has come through a combination of Propositions 13 and 1E funding. Local funding has consisted of contributions from local landowners and developers through impact fees and bond funding from Yuba County and the Yuba County Water Agency. **Table 1** below shows the total costs of the program and the sources of funding for the work.

Table 1 TRLIA Program Funding & Sources

Basin Plan Projects	Project Costs [1]	State Funding (Prop 13)	State Funding (Prop 1E)	Other Funding	Local Funding
Project 1 - Yuba River South Levee	$4,157,086				$4,157,086
Project 2 - WPIC, Yuba, Upper Bear, ODB	$48,751,385	$20,422,016		$4,702,765	$23,626,604
project 3 - Bear River North Setback Levee	$75,996,636	$42,023,082			$33,973,554
Project 4 - Yuba River South Levee UPRR to Simpson Lane	$15,834,018				$15,834,018
Project 5 - Feather River East Levee Segments 1&3	$32,323,811		$20,625,799		$11,698,012
Project 6 - Feather River East Levee Segment 2 - Setback Levee	$167,879,688		$138,604,201		$29,275,487
Project 7 - UYLIP EIP Project					
UYLIP Costs	$42,041,000		$40,260,718		$17,560,282
Remaining WPIC Costs [2]	$15,780,000				
Basin Project 8 - Goldfields					
Phase 1 - Remediations	$1,374,002				$1,374,002
Phase 2 - Feasibility Study	$3,291,474	$2,000,000			$1,291,474
Phase 2 - Implementation (UFRR Funding Request) [3]	$41,265,800		$32,600,000		$8,665,800
Overall TRLIA Program Costs & Funding	**$448,694,900**	**$64,445,098**	**$232,090,718**	**$4,702,765**	**$147,456,319**
Overall Shares		**66%**		**1%**	**33%**

Remaining Work

The remaining TRLIA Program consists of finalizing Project No. 7 – the UYLIP (work on Western Pacific Interceptor Canal - WPIC) and Project No. 8 – the Goldfields Project. All other Projects are substantially completed. TRLIA has completed all levee work on Projects 5 & 6 listed above (the Feather River East Levee Segment 1 through 3), however there are minor remaining expenses related to the closeout of the

projects which is linked to the receipt of remaining State Funding. However, the physical improvements are complete and 200-Year Certification of the Improvements has taken place.

Project No. 7 – WPIC

The WPIC West Levee Standard Project is being implemented in partnership with the State as an Early Implementation Project (EIP). This project was added to the existing Upper Yuba Levee Improvement Project (UYLIP) EIP Funding Agreement in September 2014. The State will pay 70% of this project's implementation cost. TRLIA as the local sponsor will provide the remaining 30% through local sources.

Prior to execution of the Agreement to add the WPIC Standard Project to the UYLIP EIP, TRLIA had funded various improvements to the RD 784 Levee System. Much of this work was completed using 100% local funds. Subsequently, TRLIA and DWR determined that this work and local funding for it was eligible for cost-sharing as part of the UYLIP EIP Agreement. This work ultimately generated $6,619,616 of credit toward the local cost of the remaining UYLIP Project expenses. A portion of that credit remains and is being used to fund the remaining local share costs of the UYLIP Project including the WPIC West Levee Standard Project.

TRLIA had previously budgeted funds into its program for an Upper Yuba Project. Portions of this appropriation still remain and will assist in funding the net remaining costs of the WPIC West Levee Standard Project.

The cost of the WPIC work is summarized in **Table 2** below.

Table 2 WPIC Estimated Cost and Cost Share

Item	Total Costs	Local 30%	State 70%
Design	$1,371,000	$411,300	$959,700
Permitting & Environmental Documentation	$759,000	$227,700	$531,300
Right of Way Acquisition	$609,000	$182,700	$426,300
Right of Way Support	$323,000	$96,900	$226,100
Construction Management	$1,501,000	$450,300	$1,050,700
Construction	$11,167,000	$3,350,100	$7,816,900
O&M Manual addendum	$50,000	$15,000	$35,000
Total Project	**$15,780,000**	**$4,734,000**	**$11,046,000**

Source: TRLIA UYLIP Updated OAWP Budget

Project No. 8 – Goldfields

The Goldfields 200-Year Project will be implemented in partnership with the State as part of the UFRR Program. TRLIA made application for UFRR Grant funding from the State in March 2015 for the final design and construction of the Goldfields 200-Year Project. TRLIA received a letter from DWR on May 15, 2015 conditionally committing State Funding of up to $32,600,000 and directing TRLIA to provide a final application for the Proposed Plan. TRLIA submitted the final application as requested in June 2015 and is currently negotiating the final terms of a funding agreement with the State.

Table 3 Goldfields 200-Year Project Cost Estimate and Cost Share

Item	Total Costs	Local 21%	State [2] 79%
Construction [1]	$22,774,400	$4,782,600	$17,991,800
Construction Management	$2,277,400	$478,300	$1,799,100
Environmental Permitting & Mitigation	$1,792,500	$376,400	$1,416,100
Design	$5,504,900	$1,156,000	$4,348,900
Right of Way	$7,254,200	$1,523,400	$5,730,800
Right of Way (Support)	$537,400	$112,900	$424,500
Preparation of OMRR&R Documents	$50,000	$10,500	$39,500
Program Management	$1,075,000	$225,700	$849,300
Total Project	**$41,265,800**	**$8,665,800**	**$32,600,000**

Source: MBK & ENGEO Feasibility Study Alternatives Analysis Cost Estimate Alternative No. 4.

[1] Includes $4,495,200 in contingency equivalent to 25% of construction cost.

[2] Amounts are rounded. State Cost sharing is assumed to be 79% limited to $32.6 million based upon DWR's conditional funding commitment letter dated May 15, 2015.

As part of the application for funding, TRLIA prepared a financial plan that identified the local sources of funding for the Goldfields Project. The sources include the balance of State Funding available from existing State Funding Agreements (i.e. State withheld retention due as part of project closeout) and proceeds from the issuance and sale of Bonds by the Yuba Levee Financing Authority.

Requirements for Adequate Progress Findings

The Adequate Progress finding has been defined by the 2007 California Flood Legislation (see Government Code §65007(a)) to require, at the time the finding is made by the local community, the following:

- The development of the scope, schedule and cost to complete flood protection facilities;
- Documentation that revenues have been identified to support implementation of the flood protection facilities;
- Critical features of the flood protection facilities are under construction and progressing; and
- The local flood management agency has provided DWR and the Central Valley Flood Protection Board (CVFPB) information to determine substantial completion of the required flood protection.

The local flood management agency will document annually:

- That 90% of the required revenue scheduled to be received has been appropriated and is being expended;
- Critical features of the flood protection system are under construction and progressing based on the actual expenditures of the construction budget; and,
- The City or County has not been responsible for a significant delay in the completion of the system.

In addition, the 2007 California Flood Control Legislation requires the local flood management agency to:

- Report annually to the Central Valley Flood Protection Board on the status of progress toward completion of the flood protection system; and,
- Validate that the adequate progress finding is still effective.

The following matrix addresses the requirements of Adequate Progress as outlined above.

Adequate Progress Criteria	TRLIA Approach
Evidence at Time Adequate Progress Finding is Made	
The development of the scope, schedule and cost to complete flood protection facilities;	The Adequate Progress Report and this supporting Financial Report document the scope schedule and cost of remaining flood protection facilities. The cost of the remaining flood protection facilities is detailed in the **Remaining Work** section above.
Documentation that revenues have been identified to support implementation of the flood protection facilities;	This Adequate Progress Financial Report documents the identified sources of funding for the flood protection facilities. Reference the sections entitled **Remaining Work** and **Timing of Revenue Sources/Cash Flow Considerations**.
Critical features of the flood protection facilities are under construction and progressing; and	The Adequate Progress Report addresses the schedule and ongoing construction activities.
The local flood management agency has provided DWR and the Central Valley Flood Protection Board (CVFPB) information to determine substantial completion of the required flood protection.	The Adequate Progress Report and associated Substantial Evidence Engineer's Report have been or will be provided to the CVFPB.
Annual Requirements for Adequate Progress	
That 90% of the required revenue scheduled to be received has been appropriated and is being expended;	This Adequate Progress Financial Report documents the needed revenue and appropriation (reference the sections entitled **Timing of Revenue Sources/Cash Flow Considerations**). Future Annual Reports will document the expenditures based on TRLIA's annual Budget.
Critical features of the flood protection system are under construction and progressing based on the actual expenditures of the construction budget; and,	This Adequate Progress report documents the construction schedule and this Financial Report and Future Annual updates will document the expenditure of the Construction Budget (reference the sections entitled **Timing of Revenue Sources/Cash Flow Considerations**).
Report annually to the Central Valley Flood Protection Board on the status of progress toward completion of the flood protection system; and,	As indicated within the Adequate Progress Report, TRLIA will make annual progress reports as required by GC §65007(a)(5). TRLIA proposes to complete the first annual report by June 30, 2017 and then annually thereafter.
Validate that the adequate progress finding is still effective.	This will take place annually as part of the annual reporting process.

Sources of Revenue

Ongoing State Funding Agreements

TRLIA has two active EIP Funding Agreements that are both working toward completion. The Feather River Levee Improvement Project (FRLIP) agreement is currently working toward completion with the final remaining work including closeout activities and the transfer of right of way to the State. TRLIA also has the UYLIP of which substantial elements are already complete. The remaining funding projected to be received for these two agreements is expected to cover the vast majority of the remaining expenses as well as provide additional funding by way of the release of State withheld retention to cover the local cost share of the WPIC and Goldfields project.

Pending State Funding Agreements

As noted above, TRLIA received a letter from DWR on May 15, 2015 conditionally committing State Funding of up to $32,600,000 for the 200-year Goldfields project. A future funding agreement providing this amount of funding consistent with the guidelines for the UFRR program is expected to cover a significant cost share of the Goldfields Project.

Local Funding from the Yuba Levee Financing Authority

In September 2008, the Yuba Levee Financing Authority closed on the sale of approximately $75 million in bonds, yielding $46.6 million in proceeds, for the purpose of funding the remaining local share of costs of the then budgeted TRLIA Phase 4 levee improvement program. The work identified by TRLIA is eligible to be funded as described within the indenture for the issuance. As of the date of this report, more than $7,000,000 of funding remains. At its April 13, 2016 Board meeting, the YLFA authorized TRLIA's request to draw additional funding of up to $6.3 million, in two draws pending additional status reporting by TRLIA on the progress of the remaining work. This authorization, in addition to additional future requests that TRLIA will make is expected to provide the remaining needed local funding for TRLIA's program.

Timing of Revenue Sources/Cash Flow Considerations

Since TRLIA commenced implementation of its Levee Improvement program, TRLIA has maintained a detailed pro forma cash flow that identifies the planned expenditures and identified sources of revenue available to fund the costs of its program. This detailed pro forma cash flow analysis has been used to both support the preparation of the Agency's annual budgeting process as well as administer its various funding agreements with DWR under the EIP and UFRR programs. This same cash flow will be used to support the land use agency's Adequate Progress findings; whereby the local jurisdiction must document that 90% of the required revenue scheduled to be received has been appropriated and is being expended. **Table 4** presents the pro forma annual cash flow analysis that demonstrates the planned implementation of the remaining 200-Year flood risk reduction improvements. This schedule is intended to be updated and used by TRLIA to annually report to the CVFPB on the progress of the flood protection system.

Fiscal Year	2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24
Starting Fund Balance	**$2,155,385**	**$639,946**	**$500,000**	**$6,425,705**	**$9,103,791**	**$4,592,105**	**$1,193,201**	**$4,489,170**	**$4,037,070**
Expenditures									
Remaining WPIC Costs	$2,113,055	$10,980,683	$0	$0	$0	$0	$0	$0	$0
Goldfields Costs	$1,199,948	$2,852,828	$6,670,639	$5,954,842	$14,036,181	$11,682,455	$8,957	$0	$0
Remaining FRLIP Costs	$565,446	$36,000	$36,000	$36,000	$18,000	$0	$0	$0	$0
Remaining UYLIP Costs	$432,043	$0	$0	$0	$0	$0	$0	$0	$0
Remaining 200-Year Compliance Work	$98,234	$20,000	$0	$0	$0	$0	$0	$0	$0
Ongoing Environmental Compliance Costs	$191,282	$159,064	$0	$0	$0	$0	$0	$0	$0
Other Remaining TRLIA Project Costs	$243,425	$3,604,843	$179,455	$179,455	$120,484	$0	$0	$0	$0
TRLIA GO&A	$979,410	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000	$480,000
Total Expenditures	**$5,822,844**	**$18,133,418**	**$7,366,094**	**$6,650,296**	**$14,654,665**	**$12,162,455**	**$488,957**	**$480,000**	**$480,000**
Revenues									
DWR Proposition 1E - FRLIP Funds	$482,480	$109,792	$4,890,477	$0	$0	$0	$0	$0	$0
DWR Proposition 1E - UYLIP Funds	$1,480,736	$9,377,693	$1,696,418	$4,910,414	$0	$0	$0	$0	$0
DWR Goldfields Funds	$203,683	$1,806,970	$4,721,494	$4,228,560	$9,979,725	$8,306,226	$3,757,025	$0	$0
Other DWR Funding Sources	$84,760	$1,653,758	$1,955,509	$161,509	$135,353	$429,426	$0	$0	$0
Local Funding	$2,055,745	$5,045,260	$27,900	$27,900	$27,900	$27,900	$27,900	$27,900	$27,900
Total Revenues	**$4,307,404**	**$17,993,472**	**$13,291,799**	**$9,328,383**	**$10,142,978**	**$8,763,551**	**$3,784,925**	**$27,900**	**$27,900**
Ending Balance	**$639,946**	**$500,000**	**$6,425,705**	**$9,103,791**	**$4,592,105**	**$1,193,201**	**$4,489,170**	**$4,037,070**	**$3,584,970**

Source: 16497 TRLIA Cash Flow 05-23-16 Yuba EIP R1.xlsx

Pro Forma Cash Flow Analysis Assumptions

The following items outline the relevant assumptions underpinning the cash flow analysis presented in **Table 4**. These assumptions are integral to TRLIA's ability to demonstrate available funds to complete the remaining improvements needed to achieve 200-Year flood protection by 2025, however, the exact timing of revenues and expenditures could vary overtime, hence the pro forma nature of the analysis. As shown in **Table 4**, TRLIA plans to complete the necessary improvements as soon as possible prior to 2025, therefore there is flexibility in the schedule for the completion of the improvements prior to the statutory deadline.

- Remaining work associated with the FRLIP and UYLIP Projects is completed by June 2016 except for;
    - Right of Way transfer and closeout activities; and,
    - Work on the WPIC that is being funded as part of the UYLIP EIP Funding Agreement with DWR.
- Construction commences on the WPIC during the 2016 construction season and is completed in one season.
- Funding from DWR related to the UYLIP and FRLIP projects arrives as follows;
    - FRLIP full closeout and final retention is received by the end of 2017;
    - Advance funding for the construction of the WPIC is received prior to the start of construction and true-up funding is received in 3rd Quarter of 2016/17;
    - A partial retention release for completed work on the UYLIP to date is provided by DWR pursuant to TRLIA's updated request in early 2016;
    - Additional partial releases of retention for completed UYLIP funding agreement related work are provided after the completion of the WPIC with full closeout and final retention released within 24 months of completion of all work.
- But for 10% retention withheld by DWR, DWR funding for TRLIA's other non ULDC related work, including a DWR FESSRO Grant, is trued-up on a quarterly basis thus having a minimal impact on cash flow. TRLIA assumes that the majority of all this other work will be completed by the end of FY 2016/17 with minimal project management related work thereafter until project closeout.
- The schedule for the implementation of the Goldfields Project from a pro forma cash flow analysis is consistent with the schedule in the Adequate Progress Report.
- The cash flow analysis assumes that funding agreement consistent with DWR's conditional commitment of UFRR funding for the Goldfields 200-Year project is effective by October 2016. Based on this assumption, revenues from the funding are expected to arrive as follows;
    - DWR will provide quarterly advances and true-ups consistent with the terms of prior funding agreements for all projected and completed work;
    - DWR will provide credit for eligible work that will cover the local share of forecasted and completed on a quarterly basis until the credit is exhausted;
    - Final closeout of the funding agreement with DWR takes place by June 2022.

- Remaining Local Funding from YLFA of up to $7.023 million is made available as needed to provide the local share and cash flow support for any remaining work.