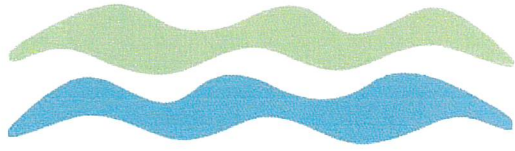


# RD 2062



## **RIVER ISLANDS AT LATHROP PHASE 1 + 2 AREAS**

## **REPORT OF ADEQUATE PROGRESS TOWARDS URBAN LEVEL OF FLOOD PROTECTION**

## **ANNUAL REPORT**

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## PURPOSE

Beginning in 2016 and continuing through 2020, the City of Lathrop adopted a finding of adequate progress (APF) toward an Urban Level of Flood Protection (ULOP) for the River Islands at Lathrop, Phase 1 urban area, and in 2020 adopted an APF for the Phase 2 urban area, both protected by the RD 2062 levees. When a local land use agency makes an APF, as described in the *Urban Level of Flood Protection Criteria* (ULOP Criteria), issued by the Department of Water Resources in 2013, Government Code Section 65007 (a) (5) requires the Local Flood Management Agency annually report to the Central Valley Flood Protection Board (CVFPB) on the progress toward the completion of the flood protection system. This report serves as that Annual Report for 2021. As required by the ULOP Criteria, this report will be made publicly available at [www.ci.lathrop.ca.us](http://www.ci.lathrop.ca.us).

RD 2062 is the local flood management agency. This report has been prepared by RD 2062's District Engineer, MBK Engineers.

## ADEQUATE PROGRESS FINDING

The City of Lathrop's APFs were based on several supporting documents including:

- RD 2062's March 2016 *River Islands at Lathrop Stage 1 Levee System, Urban Level of Flood Protection Engineer's Report*;
- RD 2062's January 2017 *River Islands at Lathrop Stage 2A and 2B Levees, Adequate Progress Towards an Urban Level of Flood Protection Engineer's Report*;
- RD 2062's February 2017 *River Islands at Lathrop, Phase 1 Area, Report of Adequate Progress towards an Urban Level of Flood Protection* (APF Report);
- RD 2062's August 2020 *River Islands at Lathrop Phase 2 Levee, Adequate Progress Towards an Urban Level of Flood Protection Engineer's Report*; and
- RD 2062's August 2020 *River Islands at Lathrop Phase 2 , Report of Adequate Progress Towards an Urban Level of Flood Protection*.

These documents collectively describe an attainable, reasonable approach toward providing an urban level of flood protection for the River Islands at Lathrop, Phase 1 and Phase 2 Areas by 2025. Specifically, these documents describe the levee system and the urban area it protects; provide substantial evidence, including data and references, demonstrating the levee system will provide an urban level of flood protection; and the scope, schedule, cost and identified sources of funding and their expected timing to provide an urban level of flood protection. The Engineer's Reports and APF Reports are hereby incorporated by reference.

Pursuant to DWR's ULOP Criteria, a finding based on adequate progress has an effective period of 10 years or until the finding is superseded, whichever is sooner, provided that the adequate progress requirements per California Government Code Section 65007(a) are met. Based upon this criterion, the finding made by the City of Lathrop based upon the APF is valid until December 31, 2025,<sup>1</sup> so long as the requirements of Government Code §65007(a) are met by RD 2062, the local flood management agency.

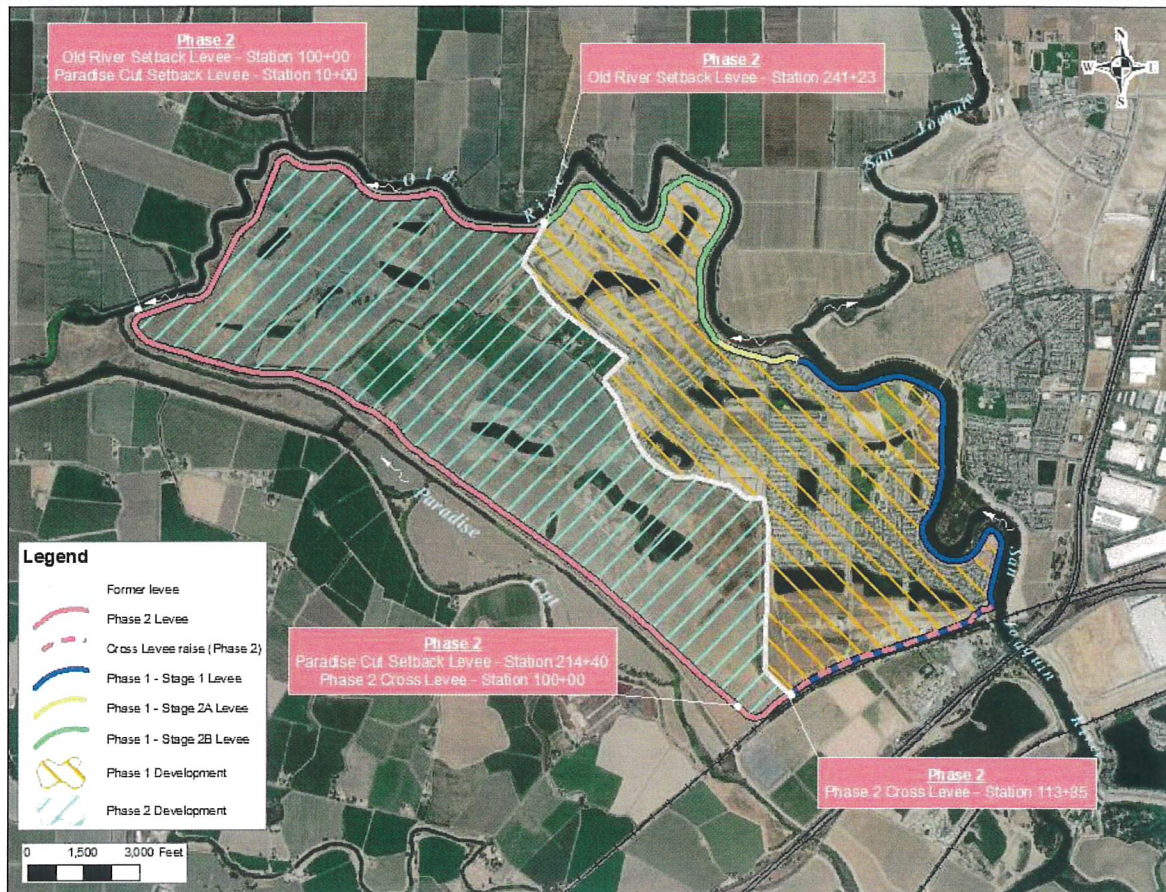
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<sup>1</sup> Pursuant to Government Code Sections 65865.5, 65962, and 66474.5, for area protected by SPFC levees, an urban level of flood protection shall be achieved by 2025, therefore, after 2025, a local agency can no longer rely on findings of adequate progress after 2025 for an area protected by SPFC levees.



## CURRENT URBAN LEVEE SYSTEM

As described in the reports listed above, River Islands at Lathrop has built the urban levee system in phases. For each new phase of work, a new ring levee was designed and constructed to join with the previous phase. Thus, with each new ring levee, the resulting interior levees were removed, and a larger ring levee was formed. The current levee configuration for the River Islands at Lathrop Phase 1 and 2 Areas is shown below. This figure reflects the construction and connection of the Phase 2 levee with the Phase 1 levees (at one end with the Phase 1, Stage 2B levee, and at the other end with the Phase 1, Cross levee). The Phase 2 levee supersedes the need for the interior portions of the Phase 1 levee, and these portions are identified as "Former levee" in the figure.



## PROGRESS

The Phase 1 APF Report identified two construction projects as being necessary to provide an urban level of flood protection to the Phase 1 Area: the River Islands Stage 2B Levee Project (Stage 2B Levee Project) and the scour prevention projects. The Stage 2B Levee Project was completed as reported in the 2018 annual report.

Two construction projects were also identified as being necessary to provide an urban level of flood protection to the Phase 2 Area in the Phase 2 APR Report: a scour prevention project, similar to that required for Phase 1, and installation of relief wells.

Finally, both the Phase 1 and Phase 2APF Reports identified non-structural actions required for certification of the levee system.

For simplicity and clarity, and because the Phase 1 levees and Phase 2 levee now protect a single and common urban area, this report and future reports will consolidate the required actions to provide a 200-year level of flood protection to the River Islands at Lathrop urban area. The status of these actions is described below.

## SCOUR PREVENTION PROJECTS

As part of the IPE review of the Phase 1 substantial evidence record, the IPE requested that River Islands evaluate the potential for erosion and scour failure of the new urban levees caused by failure of other embankments (i.e., the federal perimeter project levees and the UPRR embankment).

Initial evaluation and design of the scour prevention projects was completed in 2020 and includes a series of landside fill embankments, i.e. "check dams", located between the Phase 1 and 2 levees and the Federal Project levees. The check dams will reduce the exposure time to erosive hydraulic shear stress on the landside of the interior levees in the event of breach along the Federal Project levee and/or the UPRR embankment. Additional and advanced engineering and design began in 2021 using higher resolution hydraulic inputs and more robust scour evaluation tools. As a result, the encroachment permit application submitted by RD 2062 in 2020 may require revisions pending the outcome of the additional scour analysis.

### Schedule

The schedule for this action has changed since last year. Initial evaluations of the potential for erosion and scour failure were completed in 2020, but additional evaluation and advanced engineering and design is ongoing. If revisions to the encroachment permit application are needed, they are expected to be completed in 2022 and construction could commence later in 2022.

ACTION	ESTIMATED START	ESTIMATED COMPLETION
Scour Prevention Project – Old River & Paradise Cut – Design and Permitting	<i>Ongoing</i>	<b>2022</b>
Scour Prevention Project - Old River & Paradise Cut - Construction	<b>2022</b>	<b>2023</b>
Scour Prevention Project - UPRR – Design and Permitting	<i>Ongoing</i>	<b>2022</b>
Scour Prevention Project – UPRR - Construction	<b>2022</b>	<b>2023</b>
Note: <b>Bold</b> indicates a change in schedule.		

### Costs and Expenditures

The estimated cost to construct the six check dams is \$75,000. The scour prevention projects will be funded by RID.



## Delays and Changes

As described above, construction of the check dams has been delayed to perform additional evaluations and advanced engineering. This delay does not affect being able to certify the levee system for 200-year level of flood protection by 2025. There have been no significant changes to the project's approach.

## PHASE 2 RELIEF WELLS

As part of the design of the Phase 2 levee, seepage analyses associated with the Paradise Cut Setback Levee indicated that underseepage mitigation will be necessary to achieve 200-year level of flood protection. A line of 28 relief wells is proposed between the Paradise Cut Setback Levee and the Main Drain between approximate levee stations 46+00 to 71+00 to intercept flow during high water events and reduce the exit gradient within the Main Drain.

## Schedule

The schedule identified in the APF Report has changed. Relief well design was started in 2020 but has been put on hold while until completion of the engineering and design of the scour prevention project occurs.

ACTION	ESTIMATED START	ESTIMATED COMPLETION
Phase 2 Relief Wells - Design	<i>Ongoing</i>	<b>2022</b>
Phase 2 Relief Wells - Construction	<b>2022</b>	<b>2022</b>
Note: <b>Bold</b> indicates a change in schedule.		

## Costs and Expenditures

The relief wells are estimated to cost \$50,000, and will be funded by RID.

## Delays and Changes

Design of the relief wells was started in 2020 but has been put on hold while the advanced engineering and design for the scour prevention projects occurs. This delay does not affect being able to certify the levee system for 200-year level of flood protection by 2025. There have been no significant changes to the project's approach.

## RD 2062 O&M MODERNIZATION AND RIGHT-OF-WAY

The ULDC provides requirements to support a modern levee program. This includes ensuring robust operations and maintenance (O&M) practices and procedures and appropriate right-of-way are in place for urban levees. The scope identified in the APF Report remains the same and progress continues to be made. River Islands has granted easements to RD 2062 for the entire embankment, 20 feet landward of the landside toes, and 15 feet waterward of the waterside toes for the Stage 1 levees in 2016 and the Stage 2A and Stage 2B levees in 2018. River Islands is currently in the process of granting easements to RD 2062 for Phase 2 levee.

## Schedule

The schedule for this action has not changed since the last report. A new O&M Manual for the levee system continues to be developed while the Phase 1 and 2 levees are modified (i.e., levees are built and removed, features are added). Completion of the effort is expected after the construction of the scour prevention projects, scheduled in 2022. Easements to RD 2062 for Phase 2 will be recorded later this year.

<b>ACTION</b>	<b>ESTIMATED START</b>	<b>ESTIMATED COMPLETION</b>
RD 2062 O&M Modernization	<i>Ongoing</i>	2021
RD 2062 Transfer of Real Estate Rights for Phase 2 Levee	<i>Ongoing</i>	2021

## Costs and Expenditures

Progress on the RD 2062 O&M Modernization effort and is not being tracked by costs and expenditures, but instead through production of deliverables such as technical memoranda, updated O&M Manual chapters, plans, etc. A high-level cost estimate for performing the work is \$25,000. RD 2062 will accomplish these tasks using funds obtained through its annual assessment and/or through funds provided by RID.

## Delays and Changes

There have been no significant delays in developing a new O&M Manual and program for the levee system, nor were there any significant changes to the project's approach. However, as described above, the O&M modernization will continue to progress until after construction of the scour prevention projects, representing the last construction efforts for urban area.

## CONCLUSION

RD 2062 continues to make progress towards providing an urban level of flood protection to the River Islands combined Phase 1 and Phase 2 Areas by 2025. RD 2062 will continue to make progress and report on this progress annually. The next annual report will be submitted in June 2022 unless the entirety of levee improvements for River Islands (Phases 1 and 2) are complete and an Engineer's Report and other support documentation will be provided in support of the ULOP.