House Bill 1437 Agricultural Water Conservation Program
The Board of Directors is composed of 15 members appointed to six-year terms by the governor with the advice and consent of the Texas Senate. Directors represent counties in LCRA’s electric and water service areas. The Board meets regularly to set strategic corporate direction for the general manager and staff, to approve projects and large expenditures, and to review progress on major activities and issues.
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Executive Summary

In accordance with LCRA Board Policy 301.603 – Agricultural Water Conservation Fund, this report provides a summary of activities in 2022 related to the implementation of House Bill 1437. The report provides information about provisions in the HB 1437 legislation, ongoing projects and a status update on the fund.

Background

The Texas Legislature passed HB 1437 in 1999. The law authorizes LCRA to provide up to 25,000 acre-feet per year of surface water to Williamson County if there is “no net loss” to the lower Colorado River basin.

The legislation also created the HB 1437 Agricultural Water Conservation Fund, which is used to address the costs of mitigating any adverse effects of transferring water to Williamson County. The fund may be used only for development of water resources or other water use strategies to replace or offset the amount of transferred surface water. Water resources developed or conserved through the fund must be used to benefit the water service areas of LCRA’s irrigation operations. Projects are funded by a 25% surcharge on all water under contract to the Brazos River Authority, which has secured the full 25,000 acre-feet per year.

Water Conserved and No Net Loss

To date, all of LCRA’s projects to meet the “no net loss” requirement have involved water conservation in the agricultural divisions. In 2022, HB 1437-funded projects conserved an estimated 15,926 acre-feet of water. The amount of water available for transfer in 2022 under no net loss is 16,520 acre-feet, a figure computed in accordance with the LCRA Water Contract Rules by averaging the amount of water conserved annually in 2020, 2021 and 2022. LCRA transferred 3,248 acre-feet of water to Williamson County in 2022 under the HB 1437 program. The most recent information from the Brazos River Authority indicates transfers are expected to reach approximately 5,600 acre-feet per year in 2023, increasing to 7,600 acre-feet per year in 2024, 10,200 acre-feet in 2025 and 13,300 acre-feet per year by 2030.

2022 Activities

In 2022, LCRA continued work on the Garwood gate automation project and received authorization from the LCRA Board to launch a new land leveling recertification cost-share program.

Agricultural Water Conservation Fund

The balance in the Agricultural Water Conservation Fund as of Dec. 31, 2022, was $3.31 million. In 2022, the fund’s income totaled $604,619, and expenditures were $161,995.
Program Outlook for 2023
The activities for 2023 include completion of the Garwood gate automation project, launching the land leveling recertification cost-share program, continuing the Lakeside savings verification study, beginning a Lakeside Gate Automation Pilot Project and planning for potential future projects.
1.0 Program Overview and Requirements

1.1 Purpose of Report
This report summarizes HB 1437 Agricultural Water Conservation Program activities in 2022. It is submitted in accordance with LCRA Board Policy 301 – Finance and LCRA’s Water Contract rules. The report provides:
- Background on HB 1437 legislation and program.
- An update on projects implemented to achieve no net loss and the volume of water currently available for transfer.
- Statistics on how funds in the Agricultural Water Conservation Fund were spent.
- An overview of activities planned through fiscal year 2024.

1.2 HB 1437 Legislation
HB 1437, passed by the Texas Legislature in 1999, authorizes LCRA to provide up to 25,000 acre-feet of surface water per year for use outside the lower Colorado River watershed in Williamson County under several conditions.1
- LCRA can only transfer water in accordance with HB 1437 if it assures “no net loss” of surface water to the lower Colorado River basin, as determined by the LCRA Board of Directors.2 LCRA’s Water Contract Rules provide that the requirement for “no net loss” be satisfied prior to any diversion of water.
- LCRA is required to add a minimum of a 10% surcharge to the rates for water contracted in accordance with HB 1437 to pay the costs of mitigating any adverse effects of the transfer of water to Williamson County. Proceeds from the surcharge are deposited in the Agricultural Water Conservation Fund. In December 1999, the LCRA Board established the HB 1437 surcharge at 25%, which has remained unchanged.
- The LCRA Board may use money from the Agricultural Water Conservation Fund only for the development of water resources or other water use strategies to replace or offset the amount of surface water transferred. This includes opportunities to reduce reliance on surface water for agricultural irrigation. Water resources developed or conserved through the additional charge may be acquired from any source inside or outside LCRA’s boundaries and must be used to benefit the water service area of the authority’s irrigation operations.
- An agricultural advisory committee must be established and consulted on projects funded by HB 1437. The advisory committee is composed of agricultural interest representatives appointed by the Colorado, Wharton and Matagorda county judges.

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1 The 25,000 acre-feet per year amount is in addition to surface water that may be transferred to Cedar Park and Leander, municipalities that were water customers of LCRA on May 20, 1997, and are located in the watersheds of both the Colorado River and Brazos River.

2 LCRA’s Water Contract Rules provide that the requirement for “no net loss” be satisfied prior to any diversion of water. The rules define “no net loss” as “a hydrologic condition where the volume of Transferred Water is equivalent to, or less than, the combined value of Conserved Water, Developed Water, and Returned Water resulting in a reduced reliance on Surface Water for agricultural irrigation” (“Surface Water” is limited to Colorado River supplies). The amount of conserved, developed or transferred water is based on the average volume over a continuous three-year period.
1.3 LCRA Board Policy
In accordance with HB 1437, the LCRA Board has established policies to implement the “no net loss” requirement and established the surcharge and procedures for tracking use of the Agricultural Water Conservation Fund. These are presently included in Board Policy 301 and the LCRA Water Contract Rules (Article 10).

1.4 Agricultural Conservation Fund Advisory Committee
The Agricultural Conservation Fund Advisory Committee (Ag Advisory Committee) was established in 2000 in accordance with HB 1437. The advisory committee represents agricultural irrigation interests appointed by Matagorda, Wharton and Colorado county judges. In February 2021, these county judges reappointed all existing committee members to another three-year term. The committee last met in February 2023.

1.5 Brazos Water Contract and Interbasin Transfer Permit
In October 2000, LCRA and the Brazos River Authority signed a 50-year water sale agreement for 25,000 acre-feet per year. In addition to the standard contract provisions, the agreement included the statutorily required surcharge (currently set by the LCRA Board at 25%) for transferred and reserved water. It also contains a clause that allows the Brazos River Authority to terminate the agreement on Feb. 15 of any year after the contract has been in effect for 10 years by providing notice on or before Jan. 15 of that year. The contract has been in effect for more than 10 years, and the Brazos River Authority has not terminated the contract.

Brazos River Authority holds the interbasin transfer permit to allow transfer up to 25,000 acre-feet per year to Williamson County in the Brazos River basin. In 2022, 3,248 acre-feet of water transfers occurred.

1.6 Demand Projections for HB 1437 Water
As required by its water contract, the Brazos River Authority updates water demand projections for HB 1437 water each year. In January 2023, the Brazos River Authority presented updated water demand projections for 2023. The projections are similar to the 2022 projections. Current projections show demand to reach 7,600 acre-feet by 2024 and 10,200 acre-feet by 2025. Use in 2022 increased substantially to more than 3,200 acre-feet. The demand projections have a near-term peak of 13,300 acre-feet in 2030, unchanged from the 2022 projections. Although the current expiration year of the Georgetown contract is still 2030, they have indicated that they intend to renew the contract beyond 2030 (Figure 1.1). The Brazos River Authority is contracted to supply most of its reserved water to the City of Round Rock, with an additional allocation of 1,200 acre-feet each to the Liberty Hill Water Supply Corporation and the City of Georgetown. Larger transfers to Round Rock began in 2022 and will continue at a rate of 1,500-2,500 acre-feet per year, increasing to 7,800 acre-feet per year by 2025 and 10,900 acre-feet per year by 2030.
Figure 1.1 – Demand Projections for HB 1437 Water
1.7 Water Conserved and Available for Transfer

HB 1437 requires “no net loss” be met for interbasin transfer of surface water to Williamson County. “No net loss” occurs when the average annual volume of HB 1437 water transferred in a given year is less than or equal to the rolling average of water conserved, developed or returned in the three preceding years (per Article 10 of LCRA’s Water Contract Rules).

**Water Conserved**

LCRA estimates a total savings of 15,926 acre-feet conserved in 2022 in all three LCRA agricultural divisions.

In 2022, 8,785 acres of agricultural fields previously laser-leveled with matching funds from LCRA’s Agricultural Water Conservation Fund were in production for first crop and 3,194 acres of previously laser-leveled fields were in production for second crop, which conserved approximately 3,147 acre-feet of water. Savings for second crop was not included for Lakeside and Gulf Coast fields due to a lack of water availability as a result of the ongoing drought. LCRA did not provide any new funds for land leveling in 2022. The installation of standardized delivery structures and canal rehabilitation within the Garwood Agricultural Division saved an estimated 6,859 acre-feet of water in 2022. The automation of canal gates in the Gulf Coast Agricultural Division saved an estimated 4,840 acre-feet in 2022. The automation of canal gates in the Garwood Agricultural Division saved an estimated 1,080 acre-feet in 2022.

**Water Available for Transfer**

Based on data from the last three years, there will be 16,520 acre-feet of water available for transfer to Williamson County in 2023. Staff estimates that water conserved through existing projects (including funded but incomplete projects) will be sufficient to meet the “no net loss” requirement consistent with Brazos River Authority’s projections through 2025.

**Water Transferred**

In 2022, 3,248 acre-feet of water was transferred to the Brazos River Authority, which includes 625 acre-feet of water to Liberty Hill WSC, 754 acre-feet of water to the City of Georgetown and 1,869 acre-feet of water to Round Rock (Figure 1.2).
No Net Loss Status
The "no net loss" chart (Table 1.1) summarizes HB 1437 availability. LCRA can presently satisfy demand for up to 16,520 acre-feet of water.
Table 1.1 – No Net Loss Summary, Volume of HB 1437 Water in Acre-Feet

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<tbody>
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<td>2006</td>
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<td>0</td>
<td>0</td>
<td>1,274</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
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<td>0</td>
<td>0</td>
<td>1,481</td>
<td>0</td>
<td>0</td>
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<tr>
<td>2008</td>
<td>3,656</td>
<td>0</td>
<td>0</td>
<td>2,206*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>4,900</td>
<td>0</td>
<td>0</td>
<td>3,415*</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>5,607</td>
<td>0</td>
<td>0</td>
<td>4,721*</td>
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<tr>
<td>2011</td>
<td>7,101</td>
<td>0</td>
<td>0</td>
<td>5,869*</td>
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<td>2012</td>
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<td>0</td>
<td>0</td>
<td>6,170*</td>
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<td>0</td>
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<tr>
<td>2013</td>
<td>5,681</td>
<td>0</td>
<td>0</td>
<td>6,195*</td>
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<td>2014</td>
<td>5,188</td>
<td>0</td>
<td>0</td>
<td>5,557*</td>
<td>0</td>
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<td>2015</td>
<td>5,538</td>
<td>0</td>
<td>0</td>
<td>5,469*</td>
<td>0</td>
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<tr>
<td>2016</td>
<td>12,200</td>
<td>0</td>
<td>0</td>
<td>7,642*</td>
<td>32</td>
<td>0</td>
</tr>
<tr>
<td>2017</td>
<td>12,036</td>
<td>0</td>
<td>0</td>
<td>9,925*</td>
<td>532</td>
<td>102</td>
</tr>
<tr>
<td>2018</td>
<td>13,076</td>
<td>0</td>
<td>0</td>
<td>12,437*</td>
<td>532</td>
<td>296</td>
</tr>
<tr>
<td>2019</td>
<td>12,800</td>
<td>0</td>
<td>0</td>
<td>12,637*</td>
<td>2,316</td>
<td>345</td>
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<tr>
<td>2020</td>
<td>16,352</td>
<td>0</td>
<td>0</td>
<td>15,895*</td>
<td>4,640</td>
<td>868</td>
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<tr>
<td>2021</td>
<td>17,282</td>
<td>0</td>
<td>0</td>
<td>16,278</td>
<td>4,998&amp;</td>
<td>886</td>
</tr>
<tr>
<td>2022</td>
<td>15,926</td>
<td>0</td>
<td>0</td>
<td>16,520</td>
<td>5,614</td>
<td>3,248</td>
</tr>
</tbody>
</table>

*Three-year rolling average.

**The 2018 and 2019 annual conserved volumes shown in parentheses reflect information gathered as part of the Garwood measurement project savings update. The prior estimates are shown immediately above the updated conserved volumes. The methodology from the Garwood measurement project savings update began being used 2020 and beyond.

2.0 HB 1437 Programs

2.1 Program Planning
In 2004, the LCRA Board authorized a seven-year plan to meet projected water demands through on-farm and in-district water conservation projects and a 25% surcharge on the water transferred to Williamson County customers.

In 2009, a short-term water conservation strategies report included a five-year plan (2010-2014) to meet revised demand projections for water transfers to Williamson County. Strategies included 12,500 acres of land leveling cost-share grants, which were completed in 2013; construction of the Garwood measurement project, which was completed in 2012; and the first gate rehabilitation project in the Gulf Coast Agricultural Division, which was completed in 2012.

Since 2014, in five phases, LCRA rehabilitated gates in Gulf Coast based on availability of funding and agricultural division staff labor. The project was completed in 2019. Based on the success of this project, LCRA began a gate automation project in Garwood in 2020.

Based on the projected expiration of savings associated with land leveling cost-share grants, LCRA launched a recertification program for land-leveled fields in 2023.

Discussions are underway with Brazos River Authority regarding estimated current conservation savings and potential infrastructure projects for meeting HB 1437 requirements in the long term.
2.2 Laser Land Leveling Cost-Share Program

In 2023, LCRA revised the land leveling cost-share program and adopted updated application guidelines, eligibility rules and contract provisions for awarding cost-share conservation grants from the Agricultural Water Conservation Fund. The program no longer requires participation in the Natural Resources Conservation Service (NRCS) Environmental Quality Incentives Program (EQIP) but continues to follow NRCS technical specifications for laser land leveling and will now fund structures for water control installed in conjunction with land leveling. Additional new program requirements include a permanent levee design, a minimum levee density, a minimum levee structure size and a land survey completed prior to submitting an application. In addition, only fields irrigated at least 70% by an LCRA water service contract and at least twice in the past 10 years will be eligible for funding.

Table 2.1 shows the total acres leveled and cost-share grants awarded from 2006 to 2013. The program shared the precision land leveling cost for 365 fields, totaling 30,288 acres. The most acreage is in the Lakeside Agricultural Division (53%), followed by Garwood (43%) and Gulf Coast (4%). Since its inception, the HB 1437 Agricultural Water Conservation Fund has contributed nearly $1.75 million to a total land leveling cost of about $9.68 million – an average of 18% cost-share. The average acreage of a leveled field is about 83 acres. The average total cost to precision land level a field was about $320 per acre during this time.

Table 2.1 – 2006-2013 Acres Leveled and HB 1437 Cost-Share Grants

<table>
<thead>
<tr>
<th>Division</th>
<th>Fields Leveled</th>
<th>Acres Leveled</th>
<th>Total Project Cost</th>
<th>HB 1437 Grant Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lakeside</td>
<td>189</td>
<td>16,177*</td>
<td>$5,645,770</td>
<td>$996,763</td>
</tr>
<tr>
<td>Garwood</td>
<td>162</td>
<td>13,023</td>
<td>$3,730,554</td>
<td>$689,938</td>
</tr>
<tr>
<td>Gulf Coast</td>
<td>14</td>
<td>1,088</td>
<td>$305,932</td>
<td>$61,818</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>365</strong></td>
<td><strong>30,288</strong></td>
<td><strong>$9,682,256</strong></td>
<td><strong>$1,748,519</strong></td>
</tr>
</tbody>
</table>

*Excludes 682 acres leveled with HB 1437 grant funds but refunded to the Agricultural Water Conservation Fund in 2010 and 2011 due to contractual issues.

LCRA’s original cost-share program ended in 2013 after achieving the five-year planning goals set in 2009. HB 1437 funds had become less relevant in encouraging participation in the NRCS EQIP, due to increases in the percentage of total precision land leveling cost that EQIP would fund. The LCRA program funded 11,500 acres above the original planned implementation study and 5,000 acres above the goal set in the 2009 five-year strategies report.
In this report, LCRA incorporated water savings from land-leveled acreage in production funded through the HB 1437 program in all three agricultural divisions. Land-leveled acreage in production in 2022 (Figure 2.1) was slightly higher than estimated, but acreage leveled in 2006 and 2007 was not included in the total.

NRCS defines the useful life of projects in the EQIP program. Per NRCS, the useful life of precision land leveling projects is 15 years. At the end of 15 years, NRCS allows farmers to re-sign for additional financial assistance with the condition that new work must move at least 100 cubic yards of soil per acre. However, NRCS has not funded many projects to retouch previously leveled land. Under the NRCS approach, the useful life on land LCRA awarded cost-share grants began maturing in 2021. In the computation of water conserved for 2022, shown in Table 1.1, 2,455 acres of 2006 and 2007 HB 1437 fields in production were not included. By 2023/2024, a large area of previously land-leveled acreage will reach the end of its useful life and no longer be considered for conservation savings. Staff presented options for the future of the land leveling program to the Ag Advisory Committee in March 2021. In 2021, LCRA contacted customers with 2006 LCRA HB 1437 cost-share contracts to assess future plans as these fields reach their 15-year life. Forty percent of those customers plan to continue to perform yearly land grading maintenance, 30% plan to touch up fields themselves using laser-guided equipment, and 30% plan to reapply for additional funds through EQIP.

In October 2022, the LCRA Board approved a new land leveling recertification cost-share program that launched in January 2023 to upgrade fields with temporary levee designs to permanent levee designs or recertify fields with permanent levee designs that are still reliably saving water. This will allow water savings for those fields to continue to count for purposes of HB 1437 no net loss requirements. The schedule for the expiration of LCRA HB 1437 contracts and associated NRCS contracts through EQIP are shown in Table 2.2.

### Table 2.2 – Expiration of HB 1437 Land Leveling Contracts

<table>
<thead>
<tr>
<th>Award Year</th>
<th>Expiration Year</th>
<th>Total Acres Funded</th>
<th>Percent Expiring</th>
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<tbody>
<tr>
<td>2006</td>
<td>2021</td>
<td>2,599</td>
<td>9%</td>
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<tr>
<td>2007</td>
<td>2022</td>
<td>3,533</td>
<td>12%</td>
</tr>
<tr>
<td>2008</td>
<td>2023</td>
<td>5,592</td>
<td>18%</td>
</tr>
<tr>
<td>2009</td>
<td>2024</td>
<td>6,463</td>
<td>21%</td>
</tr>
<tr>
<td>2010</td>
<td>2025</td>
<td>3,217</td>
<td>11%</td>
</tr>
<tr>
<td>2011</td>
<td>2026</td>
<td>3,189</td>
<td>11%</td>
</tr>
<tr>
<td>2012</td>
<td>2027</td>
<td>2,216</td>
<td>7%</td>
</tr>
<tr>
<td>2013</td>
<td>2028</td>
<td>3,479</td>
<td>11%</td>
</tr>
</tbody>
</table>
Figure 2.1
Fields Leveled in 2006-2013
Garwood and Lakeside Divisions

Legend
- 2022 HB 1437 Fields In Production
- 2006-2013 HB 1437 Precision Leveled Fields
- LORA Irrigation Canals
2.3 Garwood Agricultural Division Measurement Project
The Garwood volumetric measurement project installed or rehabilitated approximately 400 water measurement and check structures on existing canals and field laterals in the Garwood Agricultural Division. In addition, 85 miles of canal laterals were rehabilitated to facilitate LCRA control of all measurement structures. The project was completed in 2012 and was expected to conserve about 3,400 acre-feet of water each year. In 2020, LCRA worked with the University of Wisconsin to complete a Garwood savings verification study. Based on that study, LCRA updated the savings estimate to 0.33 acre-foot per acre in production, which was 6,859 acre-feet in 2022. (see Section 2.6 for more details on the study).

2.4 Gulf Coast Agricultural Division Gate Rehabilitation and Control Project
In 2011, LCRA began implementing rehabilitation, automation, and remote monitoring and control of main canal gates in the Gulf Coast Agricultural Division to address high canal water losses. A matching grant from the U.S. Bureau of Reclamation funded a portion of the work. A radio-based communications system and supervisory control and data acquisition (SCADA) interface now allows centralized management of the canal system’s main gates, reducing water loss and spills.

In 2019, LCRA finished the last phase of the Gulf Coast Agricultural Division gate rehabilitation project to automate 12 additional gates on the Wadsworth line of the eastern canal system. Fifty-seven main canal structures are now automated in the Gulf Coast canal system.

The combined gate rehabilitation projects are projected to save an estimated 4,840 acre-feet per year, based on the original savings estimate of 3.5% reduction in historical river diversions. In 2022, overflow volumes (excess water not needed for irrigation that is released out of the end of canal lines) at the overflow measurement sites in use were negligible throughout the system as compared to estimates of 3,569 acre-feet of overflows before the gate rehabilitation project began. Several of the overflow measurement sites were not utilized due to low acreage in production on those canal lines.

2.5 Garwood Gate Automation Project
The main canal gate structures in the Garwood Agricultural Division are unique compared with the other divisions because they already have metal slide gates in good condition. Staff proposed automating the existing gates using the same actuators as in the Gulf Coast gate rehabilitation project. In fall 2019, staff built an automated gate prototype in Garwood. The two-week pilot project was successful, and in November 2019, staff presented a project to automate 46 main canal gate structures in Garwood to the HB 1437 Agricultural Water Conservation Fund Advisory Committee. With the committee’s unanimous support for the project and authorization from the LCRA Board in May 2020, LCRA added the three-year project to the LCRA fiscal year 2021-2023
capital plan. In June 2020, LCRA received a grant from the Texas Water Development Board to cover $244,744 of the project cost. In 2022, 18 sites were automated and the 28 remaining sites will be completely automated in 2023. Staff estimates that the 40 percent of sites completely automated in 2022 generated a savings of 1,080 acre-feet per year.

Figure 2.2 shows the sites planned for automation each year from 2021 through 2023. These structures will be integrated into the existing SCADA system developed for the Gulf Coast gate rehabilitation project.
2.6 Conservation Monitoring and Measurement

Accurate water conservation estimates are critical to demonstrate compliance with the “no net loss” requirement.

**Leveling Verification Study**

In 2012, LCRA worked with The University of Texas LBJ School of Public Affairs to complete a land leveling savings verification study. The study used six years of LCRA billing data and detailed farmer surveys to quantify water savings from on-farm precision land leveling in the Lakeside Agricultural Division. The study identified a statistically significant difference in water use between leveled and non-leveled fields for first crop. Based on the study, LCRA revised the savings estimate to 0.46 acre-foot per acre, which includes 0.3 acre-foot per acre for first crop and an extrapolated 0.16 acre-foot per acre for second crop. In early 2022, LCRA began a Lakeside customer survey to gather 2016-2021 data to update this study.

**Land-Leveled Field Mapping**

LCRA uses an electronic mapping application to determine the land-leveled acres in production each year, which is used to calculate water conserved through land leveling. LCRA staff developed the first version of this application called “uMap” in 2012. The application makes mapping fields for contracted acreage more efficient and accurate. In 2016, for the first time, all three agricultural divisions used uMap as a part of the irrigation water contracting process. In 2018, uMap was upgraded to a new platform called xMap and in 2019, the irrigation billing software was linked to xMap. This linked system significantly reduced the quality assurance/quality control that was previously required to match data between the geographic information system platform and the billing software and time spent by staff to re-draw field shapes that can now be copied from one year to the next. In early 2020, the structures data set also was upgraded to xMap.

**Ongoing and Future Verification Studies**

In 2020, LCRA staff conducted a survey of Garwood customers to complete the Garwood savings verification study with data from 2012-2019. In late 2020, the University of Wisconsin finalized the savings verification study results and found that the implementation of completely volumetric billing conditions result in a decreased water use of at least 0.33 acre-foot per acre.

LCRA staff has also evaluated potential savings from the Garwood measurement project using a statistical analysis of river diversions and predicted water use factoring in weather and acreage variability. Over the past decade, conjunctive groundwater use on fields watered by LCRA has increased, however, detailed information on groundwater use by individual field is not available. Therefore, staff does not recommend relying on that analysis because it does not have sufficient data to compensate for areas using groundwater.
Based on findings from the on-farm conservation verification study, staff updated the current savings number of 3,400 acre-feet for the Garwood measurement project to 0.33 acre-foot per acre, for an average annual savings of 6,859 acre-feet per year for the 2020-2022 period. The total savings volume will be updated annually based on the Garwood first crop rice acreage in production for the current year.

The 2022 irrigation season data for Gulf Coast continues to demonstrate the success of the gate rehabilitation project, reducing overflows from thousands of acre-feet to less than 100. The initial estimate of 4,840 acre-feet of savings will be used until there are enough years of data following completion of the project to perform a reliable savings verification study. Complicating factors include wide variation in the frequency and timing of shutdowns due to heavy rainfall events between seasons and substantially lower acreage in production recently compared to historical trends.

In 2018-2019, LCRA installed a total of 16 temporary water level monitoring devices at key check structures within the Lakeside and Garwood divisions. Staff continues to find that having remote access to water flow data is a helpful for increasing efficiency in managing canal water levels.

**Lakeside Gate Automation Pilot Study**
Staff developed a prototype automated gate design for Lakeside and will install the design in 2024 at a main structure on the Chesterville line of the Lakeside canal system. In October 2022, the LCRA Board approved funding for this pilot gate automation project. The prototype will be similar to the structures installed in Gulf Coast with the addition of an overflow structure to address flow that enters the Lakeside canal system during heavy rain events.
3.0 Agricultural Water Conservation Fund

The HB 1437 Agricultural Water Conservation Fund was established by the HB 1437 legislation for the development of water resources or other water use strategies to replace or offset the amount of surface water to be transferred to Williamson County. It is managed separately from LCRA funds in an interest-bearing account.

The fund receives income from the surcharge provision incorporated into the HB 1437 water sales contract with the Brazos River Authority. The current surcharge is 25% and is applied to both reserved and diverted water. Surcharge income is deposited into the Agricultural Water Conservation Fund in January of each year.

3.1 Expenditures

Table 3.1 summarizes 2022 expenditures by project. It shows that 2022 expenditures totaled $161,995, which included $156,138 for the Garwood gate automation project. Program administration and conservation verification expenditures were $5,857. The 2022 expenses in the Garwood gate automation column represent the third year of expenses for this project, which is scheduled for completion in June 2023 (see Section 2.5).

Table 3.1 – HB 1437 Expenditures by Project

<table>
<thead>
<tr>
<th></th>
<th>Leveling Grants and Other Administrative Costs</th>
<th>Garwood Project</th>
<th>Gulf Coast Gate Rehab</th>
<th>Garwood Gate Automation</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Previous Expenditures 2003-2021</td>
<td>$2,806,004</td>
<td>$817,606</td>
<td>$1,597,480</td>
<td>$617,240</td>
<td>$5,838,330</td>
</tr>
<tr>
<td>Expenditures in 2022</td>
<td>$5,857</td>
<td>$0</td>
<td>$0</td>
<td>$156,138</td>
<td>$161,995</td>
</tr>
<tr>
<td>Total</td>
<td>$2,811,861</td>
<td>$817,606</td>
<td>$1,597,480</td>
<td>$773,378</td>
<td>$6,000,325</td>
</tr>
</tbody>
</table>
In 2022, the LCRA Board authorized the use of $600,000 from the fund for the land leveling recertification cost-share program and the Lakeside gate automation pilot project. Program expenditures through 2022 were below the $7.235 million amount authorized to date.

Table 3.2 – HB 1437 Board Approvals

<table>
<thead>
<tr>
<th>LCRA Board Meeting</th>
<th>Amount</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>November 2003</td>
<td>$250,000</td>
<td>Implementation study</td>
</tr>
<tr>
<td>March 2005</td>
<td>$75,000</td>
<td>Implementation study</td>
</tr>
<tr>
<td>March 2006</td>
<td>$350,000</td>
<td>Spring 2006 on-farm conservation projects</td>
</tr>
<tr>
<td>November 2006</td>
<td>$500,000</td>
<td>Spring 2007 on-farm conservation projects</td>
</tr>
<tr>
<td>December 2007</td>
<td>$500,000</td>
<td>Spring 2008 on-farm conservation projects</td>
</tr>
<tr>
<td>December 2008</td>
<td>$350,000</td>
<td>Spring 2009 on-farm conservation projects</td>
</tr>
<tr>
<td>November 2009</td>
<td>$450,000</td>
<td>Spring 2010 on-farm conservation projects; Phase 1 of Garwood Measurement Project</td>
</tr>
<tr>
<td>May 2010</td>
<td>$300,000</td>
<td>Cost-share match for Gulf Coast Gate Rehabilitation Project grant</td>
</tr>
<tr>
<td>December 2010</td>
<td>$625,000</td>
<td>Spring 2011 on-farm conservation projects; Phase 2 of Garwood Measurement Project; Phase 1 of Gulf Coast Gate Rehabilitation Project</td>
</tr>
<tr>
<td>November 2011</td>
<td>$590,000</td>
<td>Spring 2012 on-farm conservation projects; Phase 3 of Garwood Measurement Project; Phase 2 of Gulf Coast Gate Rehabilitation Project</td>
</tr>
<tr>
<td>January 2013</td>
<td>$340,000</td>
<td>Spring 2013 on-farm conservation projects; Phase 3 of Gulf Coast Gate Rehabilitation Project – Oxea</td>
</tr>
<tr>
<td>March 2014</td>
<td>$400,000</td>
<td>Phase 4 of Gulf Coast Gate Rehabilitation Project – Western Canal System</td>
</tr>
<tr>
<td>May 2016</td>
<td>$430,000</td>
<td>Phase 5 of Gulf Coast Gate Rehabilitation Project – Western Canal System extension</td>
</tr>
<tr>
<td>August 2017</td>
<td>$300,000</td>
<td>Phase 6 of Gulf Coast Gate Rehabilitation Project – Eastern Canal System completion</td>
</tr>
<tr>
<td>May 2020</td>
<td>$1,175,000</td>
<td>Garwood Gate Automation Project</td>
</tr>
<tr>
<td>October 2022</td>
<td>$600,000</td>
<td>Land leveling recertification cost-share program Lakeside Gate Automation Pilot Project</td>
</tr>
</tbody>
</table>

Total            $7,235,000
3.2 Fund Balance

Figure 3.1 shows the annual income, expenditures and current balance of the Agricultural Water Conservation Fund. The fund balance as of Dec. 31, 2022, was $3,311,234. Expenditures over the 2022 reporting period totaled $161,995. Total income over the 2022 reporting period was $604,619.

Figure 3.1 – Annual Agricultural Water Conservation Fund Income and Expenditures

![Annual Agricultural Fund Income and Expenditures Graph](image-url)
4.0 FY 2024 Program and Budget

The fiscal year 2024 outlook includes continuation of the new land leveling cost-share recertification program, beginning the Lakeside gate automation pilot project (see Section 2.6 for a detailed project description) and ongoing work on verification studies. This section discusses projects that are scheduled to begin during FY 2024.

4.1 Lakeside Gate Automation Pilot Project
In October 2022, the LCRA Board approved a total expenditure of up to $100,000 to automate one main canal gate structure in the Lakeside Agricultural Division. The location selected for the pilot project lies at the headwaters for three main canal lines in the Lakeside canal system. Automation at this site will allow staff to remotely adjust and monitor flow allocated to each canal downstream. Project deliverables include two new large gates, gate actuators with associated wiring and integration into the LCRA Irrigation SCADA system. This project, scheduled for FY 2024, will complete automation of a key canal gate structure structure in Lakeside and further define the scope of work, budget and schedule to automate the remainder of the Lakeside Agricultural Division canal system.

4.2 Laser Land Leveling Cost-Share Recertification Program
The revised land leveling cost-share recertification program launched in January 2023. In October 2022, the LCRA Board approved a total expenditure of up to $500,000 over three years, FY 2023-FY 2025. Staff estimated expenditures of $100,000 for the first year of the program in spring 2023 (FY 2023), $200,000 for the second year of the program (FY 2024) and $200,000 for the third year of the program (FY 2025). Funds not used in FY 2023 will be carried over to the next funding cycle in spring 2024.

4.3 FY 2024 Budget
The budget period for HB 1437 is LCRA’s fiscal year (July 1 through June 30). The proposed FY 2024 budget for the HB 1437 program is summarized in Table 4.1 and shows a total estimated budget of $325,000.

Table 4.1 – HB 1437 Budget for FY 2024

<table>
<thead>
<tr>
<th>Activity</th>
<th>Budget</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Lakeside gate automation pilot project</td>
<td>$100,000</td>
<td>One-year pilot project funded through Board authorization in October 2022.</td>
</tr>
<tr>
<td>2. Land leveling recertification cost-share program</td>
<td>$200,000</td>
<td>Second year of the three-year cost-share program funded through Board authorization in October 2022.</td>
</tr>
<tr>
<td>3. Program management, communications, conservation verification and oversight</td>
<td>$25,000</td>
<td>Preparation of annual report; ongoing savings verification study updates.</td>
</tr>
<tr>
<td>Total</td>
<td>$325,000</td>
<td></td>
</tr>
</tbody>
</table>
About LCRA
The Lower Colorado River Authority serves customers and communities throughout Texas by managing the lower Colorado River; generating and transmitting electric power; providing a clean, reliable water supply; and offering outdoor adventures at more than 40 parks along the Colorado River from the Texas Hill Country to the Gulf Coast. LCRA and its employees are committed to fulfilling our mission to enhance the quality of life of the Texans we serve through water stewardship, energy and community service. LCRA was created by the Texas Legislature in 1934 and receives no state appropriations. For more information, visit www.lcra.org.