

Filed by Veritex Holdings, Inc. pursuant to Rule 425 under the Securities Act of 1933, as amended, and deemed filed pursuant to Rule 14a-12 under the Securities Exchange Act of 1934, as amended

Subject Company: Green Bancorp, Inc. Commission File Number: 001-36580

To my Veritex colleagues,

We're Growing Larger, Getting Better, and Becoming Stronger, Together!

Today is a milestone for Veritex Bank and the beginning of a new era as we announce that Green Bank will become part of our Veritex family. For the last eight years Veritex has set the pace for growing banks in Texas. From our beginnings with just three branches acquired from Professional Bank, to the 21 branches we have today, Veritex Community Bank is the new standard for banking growth in Texas.

With that growth comes a responsibility to maintain the core values that Veritex is rooted in. Truth, trust, transparency and a dedication to serve our communities will always be the pillars that Veritex Bank is built on. The name "Veritex" is derived from the Latin root word "veritas" meaning truth and "Texas." The corporation is dedicated to living up to its namesake of "Truth in Texas Banking.". How much longer can this growth continue? Well, our foundation is solid and our shoulders strong.

Green Bank will officially join our Veritex family once we receive all of our regulatory approvals and the like. Veritex was drawn to Green Bank because of the quality of its people and its locations. Green Bank's dedicated and passionate employees make it the one of the banks of choice for us to expand into the Houston market.

The vision for Veritex is to continue to build the highest-quality, diversified \$10 billion community bank in Texas. We will continue to add locations to better serve our growing customer base, employ and retain best-in-class experienced banking professionals, and update our products, systems and technology to serve the needs of our clientele. As a team, we will pursue a diversified loan portfolio with a heavy emphasis on the small and medium-sized business segment, a market largely ignored by the national and super-regional banks.

We see a great future for Veritex and Green Bank. With our dynamic leadership and growth record, we can continue to build one of Texas' great banking institutions. With your help and dedication, Veritex and Green will benefit our shareholders, customers and communities for years to come.

Kind regards,

C. Malcolm Holland, III Chairman, CEO & President

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Important Additional Information will be Filed with the SEC

This letter does not constitute an offer to sell or the solicitation of an offer to buy any securities or a solicitation of any vote or approval with respect to the proposed acquisition by Veritex Holdings, Inc. ("Veritex") of Green Bancorp, Inc. ("Green"). No offer of securities shall be made except by means of a prospectus meeting the requirements of the Securities Act of 1933, as amended, and no offer to sell or solicitation of an offer to buy shall be made in any jurisdiction in which such offer, solicitation or sale would be unlawful.

In connection with the proposed transaction, Veritex plans to file with the U.S. Securities and Exchange Commission (the "SEC") a Registration Statement on Form S-4 containing a joint proxy statement of Veritex and Green and a prospectus of Veritex (the "Joint Proxy/Prospectus"), and each of Veritex and Green may file with the SEC other documents regarding the proposed transaction. The definitive Joint Proxy/Prospectus will be mailed to shareholders of Veritex and Green. SHAREHOLDERS ARE URGED TO READ THE REGISTRATION STATEMENT AND THE JOINT PROXY/PROSPECTUS REGARDING THE TRANSACTION CAREFULLY AND IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE AND ANY OTHER DOCUMENTS FILED WITH THE SEC BY VERITEX AND GREEN, AS WELL AS ANY AMENDMENTS OR SUPPLEMENTS TO THOSE DOCUMENTS, BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION. Investors will be able to obtain free copies of the Registration Statement and the Joint Proxy/Prospectus (when available) and other documents filed with the SEC by Veritex and Green through the website maintained by the SEC at www.sec.gov. Free copies of the Registration Statement and the Joint Proxy /Prospectus (when available) and other documents filed with the SEC can also be obtained by directing a request to Veritex Holdings, Inc., 8214 Westchester Drive, Suite 400, Dallas, Texas 75225, or by directing a request to Green Bancorp, Inc., 4000 Greenbriar Street, Houston, Texas 77098.

Participants in the Solicitation

Veritex, Green and their respective directors and certain of their executive officers and employees may be deemed to be participants in the solicitation of proxies from the shareholders of Green or Veritex in respect of the proposed transaction. Information regarding Veritex's directors and executive officers is available in its proxy statement for its 2018 annual meeting of shareholders, which was filed with the SEC on April 3, 2018, and information regarding Green's directors and executive officers is available in its proxy statement for its 2018 annual meeting of shareholders, which was filed with the SEC on April 13, 2018. Information regarding the persons who may, under the rules of the SEC, be deemed participants in the proxy solicitation and a description of their direct and indirect interests, by security holdings or otherwise, will be contained in the Joint Proxy/Prospectus and other relevant materials to be filed with the SEC when they become available. Free copies of this document may be obtained as described in the preceding paragraph.

Forward-looking Statements

This letter includes "forward-looking statements," within the meaning of Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. Forward-looking statements are based on various facts and derived utilizing important assumptions, current expectations, estimates and projections and are subject to known and unknown risks, uncertainties and other factors that may cause actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements, Forward-looking statements include, without limitation, statements relating to the impact Veritex expects its proposed acquisition of Green to have on the combined entity's operations, financial condition, and financial results, and Veritex's expectations about its ability to successfully integrate the combined businesses and the amount of cost savings and overall operational efficiencies Veritex expects to realize as a result of the proposed acquisition. The forward-looking statements also include statements about Veritex's future financial performance, business and growth strategy, projected plans and objectives, as well as other projections based on macroeconomic and industry trends, which are inherently unreliable due to the multiple factors that impact economic trends, and any such variations may be material. Statements preceded by, followed by or that otherwise include the words "believes," "expects," "anticipates," "intends," "projects," "estimates," "plans" and similar expressions or future or conditional verbs such as "will," "should," "would," "may" and "could" are generally forward-looking in nature and not historical facts, although not all forward-looking statements include the foregoing. Further, certain factors that could affect future results and cause actual results to differ materially from those expressed in the forward-looking statements include, but are not limited to, the possibility that the proposed acquisition does not close when expected or at all because required regulatory, shareholder or other approvals and other conditions to closing are not received or satisfied on a timely basis or at all, the failure to close for any other reason, changes in Veritex's share price before closing, that the businesses of Veritex and Green will not be integrated successfully, that the cost savings and any synergies from the proposed acquisition may not be fully realized or may take longer to realize than expected, disruption from the proposed acquisition

making it more difficult to maintain relationships with employees, customers or other parties with whom Veritex or Green have business relationships, diversion of management time on merger-related issues, risks relating to the potential dilutive effect of shares of Veritex common stock to be issued in the transaction, the reaction to the transaction of the companies' customers, employees and counterparties and other factors, many of which are beyond the control of Veritex and Green. We refer you to the "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" sections of Veritex's Annual Report on Form 10-K for the year ended December 31, 2017, the Annual Report on Form 10-K filed by Green for the year ended December 31, 2017 and any updates to those risk factors set forth in Veritex's and Green's Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and other filings, which have been filed with the SEC and are available on the SEC's website at www.sec.gov. If one or more events related to these or other risks or uncertainties materialize, or if Veritex's underlying assumptions prove to be incorrect, actual results may differ materially from what Veritex or Green anticipates. Accordingly, you should not place undue reliance on any such forward-looking statements. Any forward-looking statement speaks only as of the date on which it is made. Neither Veritex nor Green undertakes any obligation, and specifically declines any obligation, to update or revise any forward-looking statements, whether as a result of new information, future developments or otherwise. All forward-looking statements, expressed or implied, included in this letter are expressly qualified in their entirety by the cautionary statements contained or referred to herein.