TRANSITING EXOPLANET SURVEY SATELLITE (TESS). G. R. Ricker[1], M. Clampin[2], D. W. Latham[3], S. Seager[4], R. K. Vanderspek[5], J. S. Villasenor[6], J. N. Winn[7], and the TESS Science Team. [1]MIT Kavli Institute for Astrophysics and Space Research, Room 37-501, 77 Massachusetts Avenue, Cambridge MA 02139, grr@space.mit.edu [2]NASA's Goddard Spaceflight Center, Greenbelt, MD, mark.clampin-1@nasa.gov [3]Smithsonian Astrophysical Observatory, latham@cfa.harvard.edu [4]MIT, seager@mit.edu [5]MIT, roland@space.mit.edu [6]MIT, jsvilla@space.mit.edu [7]MIT, jwinn@mit.edu

The Transiting Exoplanet Survey Satellite (TESS) will discover thousands of exoplanets in orbit around the brightest stars in the sky. In a two-year survey, TESS will monitor more than 500,000 stars for temporary drops in brightness caused by planetary transits. This first-ever spaceborne all-sky transit survey will identify planets ranging from Earth-sized to gas giants, around a wide range of stellar types and orbital distances. No ground-based survey can achieve this feat. A large fraction of TESS target stars will be 30-100 times brighter than those observed by Kepler satellite, and therefore TESS planets will be far easier to characterize with follow-up observations. TESS will make it possible to study the masses, sizes, densities, orbits, and atmospheres of a large cohort of small planets, including a sample of rocky worlds in the habitable zones of their host stars. TESS will provide prime targets for observation with the James Webb Space Telescope (JWST), as well as other large ground-based and space-based telescopes of the future. TESS data will be released with minimal delay (no proprietary period), inviting immediate community-wide efforts to study the new planets. The TESS legacy will be a catalog of the very nearest and brightest main-sequence stars hosting transiting exoplanets, thus providing future observers with the most favorable targets for detailed investigations.