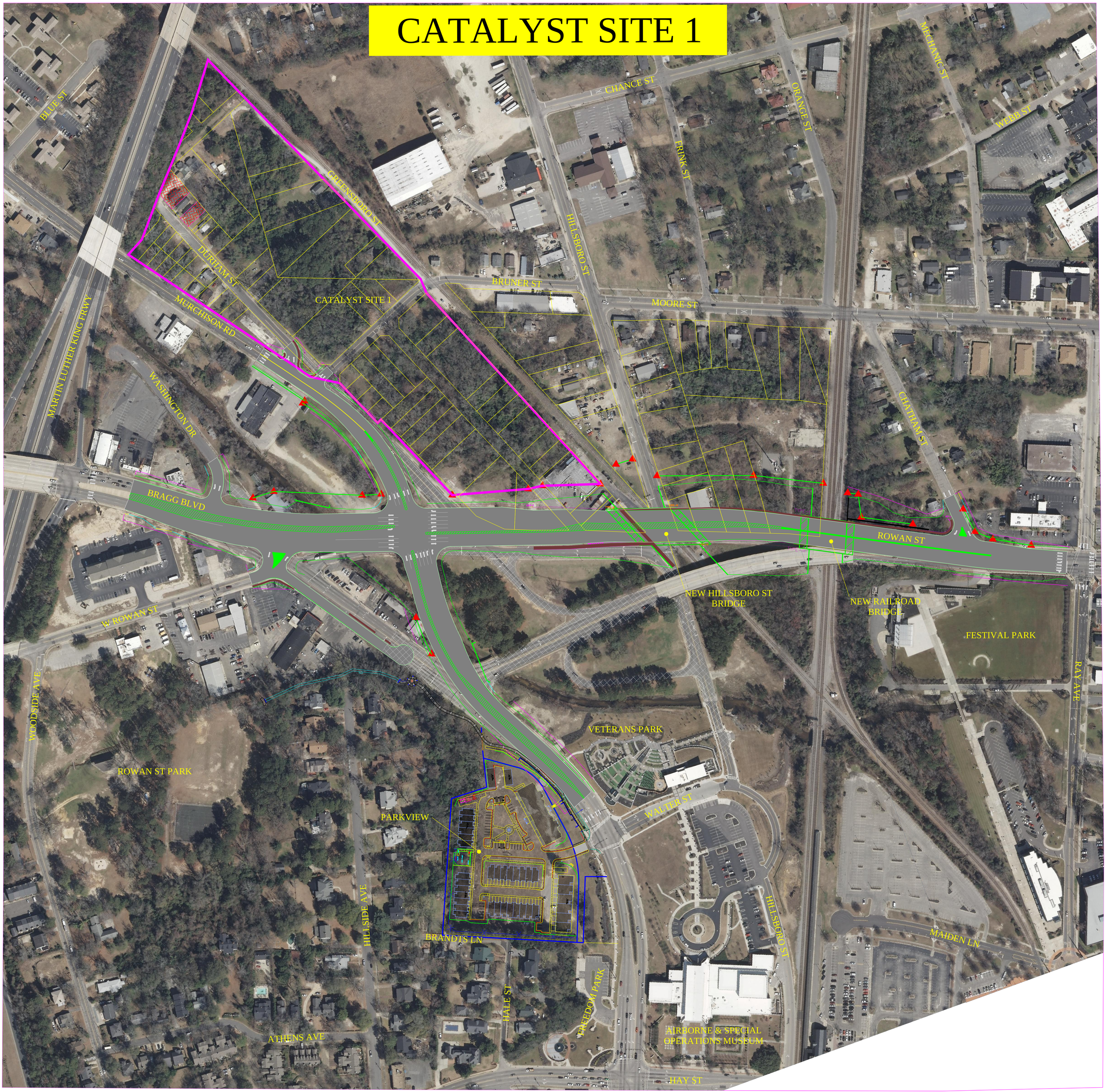CATALYST SITE 1