

DISTRICT 4 COUNCILMAN: **REY SALDAÑA**

PROJECT MANAGER: ALMA NUNEZ

PRESENTER: TROY DORMAN, PhD, P.E., CFM

ABSTRACT:

The Lackland Corridor Gateway Monument project is centered on a sculpture honoring the Air Force basic training mission at Lackland AFB in San Antonio, Texas. The site, partially owned by TxDOT and partially by the Joint Base San Antonio (Air Force), will be transformed into a park setting by a City of San Antonio capital improvements project. The transformation starts with removing 900 ft. of existing poor functioning concrete stormwater drainage channel and lifting it to a higher functioning ecological state through stream restoration. The restoration will reduce stream velocity and reconnect the stream to its floodplain to reduce downstream flooding. Runoff from all new onsite parking areas will be managed through a bioretention area sized to capture the 90th percentile storm and then slowly released into the stream to provide high quality base flow. Two additional bioretention areas will capture the 90th percentile storm from adjacent roadways that drain through the site reducing pollutant loads, erosion, and mitigating the peak flow effects from impervious cover. The integration of native and site appropriate vegetation including riparian, upland, and grassland species improves viability of the site and reduces water usage. The proposed tree canopy includes 161 native trees, carefully selected vegetation and also a butterfly habitat for the endangered Monarch Butterfly. The site will include interpretive signage to inform visitors of the LID features and their benefits to human habitat. The project is currently in final negotiation with the contractor and will complete construction within 6 months. The City of San Antonio Parks department will assume maintenance of the project after the contractors 1 year warranty period ends. The San Antonio River Authority, who selected the project for a competitive \$100,000 LID grant, will also verify performance and viability of the BMPs for up to two years after construction is completed.

MASTER PLAN:

The vision of District 4 City Councilman Rey Saldaña is to recognize the value of Joint Base San Antonio-Lackland as part of the history and future of San Antonio as Military City USA. The design intentions of the streetscape enhancement conceptual master plan are two-fold:

- Leave a lasting first impression on the thousands of family members of freshly-minted Air Force Cadets and
- Integrate vehicular traffic into an efficient and complete street that supports pedestrians, bicyclists, and users of public transportation.

CORRIDOR GATEWAY PHASE 1:

In October 2014, the City Council allocated funding for Phase 1, the Lackland Corridor Gateway, to serve as a catalyst to stimulate the urban vitality of the community surrounding JBSA-Lackland. To provide a place of 'lasting impression' in a well-designed environment, the corner of US Hwy. 90 and SW Military Drive—the most visible location along the Corridor as the gateway to Lackland Air Force Base- was chosen as the site. The site, partially owned by TxDOT and partially by the Joint Base San Antonio (Air Force), will be transformed into a park setting by a City of San Antonio capital improvements project. In November 2015, the Council accelerated funding for the complete site design and construction with an aggressive 6-month design schedule. The project is currently in final negotiation with the contractor with an anticipated construction schedule of 6 months. Construction is slated to begin in November 2016. The City of San Antonio Parks department will assume maintenance of the project after the contractors 1 year warranty period ends. Total project funding has been allocated at \$6.1 million.

Site Enhancements - Consistent with the Lackland Corridor Streetscape Conceptual Master Plan (2014 RVK), the development of the most visible location along the corridor known as the Gateway Project. A five acre parcel at the intersection of U.S. Highway 90 and SW Military Drive accepts and carries drainage from a larger watershed west and north of the site. A paved channel bottom transitions to a full concrete channel southeast of the site and northeast of JBSA Lackland proper. Design enhancements include but are not limited to the following:

- stream naturalization Storm water management including area planted LID features in its final
- configuration 161 Trees with automatic bubbler irrigation system for establishment
- 161 Trees with automatic bubbler irrigation system for establishment Picnic unit with shade canopy
- Area Parking (19 spaces)
- Picnic unit with shade canopy
- Storm water improvements to existing channel Restroom Port a Unit with its enclosure
 - 75' Monument (Tribute) by local artist George Schroeder, lit at night with LED light fixtures
 - Walkways with Two architectural pedestrian bridges Sidewalks
 - Three overlook nodes with interpretative graphic panel and seating area
 - Entry Wayfinding Sign

DESIGN PRINCIPLES:

The central guiding objectives for the design include:

- Increase levels of safety and enhance the perception of safety,
- Highlight pedestrian and bicycle connections,
- Enhance and generate memorable places,
- Create an environmentally sound urban space using low impact techniques, facilitate ecosystem services
- Lay the foundation for a future corridor streetscape to mature and last the test of time
- Improve economic vitality of the area.

GRANT:

The design team submitted a LID grant application to the San Antonio River Authority on behalf of the City of San Antonio. The project was awarded a \$100,000 grant through a competitive process. SARA will also verify performance and viability of the BMPs for up to two years after construction is completed.

LACKLAND CORRIDOR GATEWAY









PERVIOUS PAVEMENT SECTION WITHIN CYCLE

PROPERTY

(1) FIVE PALMS PLAZA

1) SELFRIDGE PLAZA



RAIN GARDEN NORTH OF GATE DRIVE WITHIN RIGHT

DOUBLE DROP CROSS VEIN DETAIL 1

CHANNELED FLOW

LEON CREEK

FLOW OVERBANKING

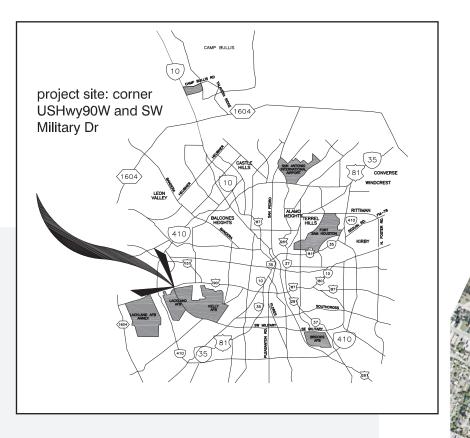
SIDEWALL OF CHANNEL

INTERACTIVE BIORETENTION PLANTING PLAN



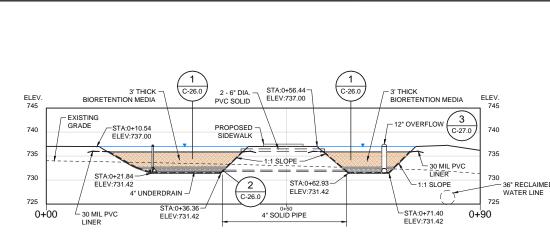


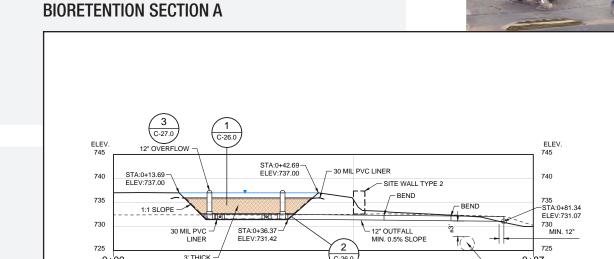


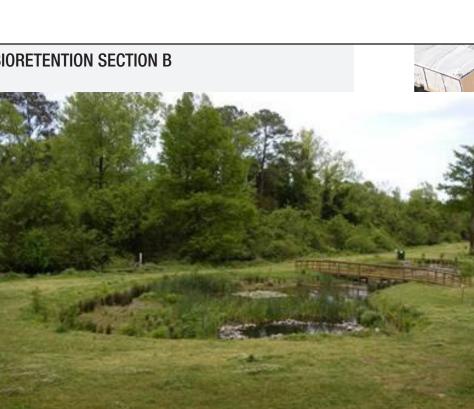




EXISTING FLOOD PLAIN 3D MODEL









INTERACTIVE BIORETENTION PLAN



RAIN GARDEN @ PLAZA. REFER TO PROPOSED

CONVERT CONCRETE CHANNELS TO VEGETATION

LID Strategies Master Plan

NEW MASSES OF VEGETATION SIMILAR TO IH35/ MILITARY DRIVE INTERSECTION. ALL

CONCENTRATED

FLOW FROM OFF-SITE

300 ACRE WATERSHED

BIORETENTION SURROUNDING GATEWAY

MONUMENT RAIN GARDENS WITHIN MEDIANS

RANSIT STOPS (FIGURE 4-12) FOR LID FEATURES AT VIA



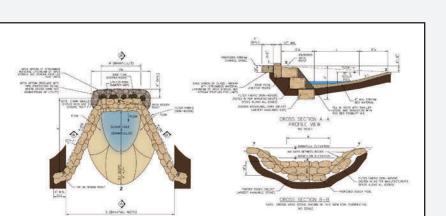
PROPERTY

ECOSYSTEM SERVICES:

This project affords the opportunity to enhance the ecosystem services of our urban environment. Ecosystem services are the processes by which the environment produces resources that offset our everyday lives. The goal of the site development is to restore or supplement four categories of ecosystem services: provisioning (production of food/water); regulating (climate control/ disease control); supporting (nutrient cycles/crop pollination); and cultural (spiritual/recreational benefits).

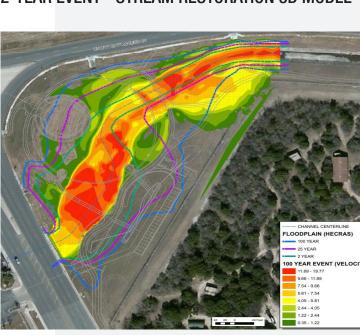


EXISTING CONCRETE CHANNEL



SINGLE DROP CROSS VEIN DETAIL 2





100-YEAR EVENT - FLOOD PLAIN 3D MODEL

Urban Riparian Reforestation:

Concerned with the rapid development of its region, the City of San Antonio engaged American Forests to complete an urban systems analysis (updated May 2009). The report quantified the impact of the changing land cover for the mitigation of storm water runoff, air and water pollution, and the provision of carbon storage and sequestration. The anticipated quantified value to the ecosystem services through the new native riparian and upland tree plantings on this +5-acre site prorated in context of the May 2009 updated American Forests Canopy Analysis equates to:

- •2.06 acres of tree canopy.
- •Management of 27,872 cubic feet of storm water; estimated value of \$17,860 annually. •Removal of 364 pounds of air pollutants; estimated value of \$865 annually.
- Storage of 140 tons of carbon sequestrating 29 tons per year

Stormwater Management:

Drainage from the 360-acre watershed west of Military Drive passes through a box culvert bridge beneath the roadway as it flows toward Leon Creek. The +5 acres present an opportunity to incorporate structural storm water best management practices (BMP's) to facilitate enhancing water quality while reducing the transport of pollutants within the Leon Creek Watershed through the inclusion of LID strategies. LID strategies being implemented

- Regenerative landscape The integration of native and site appropriate vegetation including riparian, upland, and grassland species improving the viability of the site and reducing water usage.
- Biofiltration for removal of contaminants and pollutants from roadway and parking lot paving via three bioretention features – two located along the street frontage and one within the site treating storm water runoff from the parking lot
- Impervious cover limits
- Building materials limiting the use of materials that contribute to water pollution Shade structure canopy runoff diversion to bioretention area
- Floodplain Depressions- include vegetated swales, detention/infiltration basins
- with biotic habitat. Litter control

 Waterway/stream naturalization to replace a poorly functioning concrete channel with a stable healthy stream.

The transformation starts with removing 900 ft. of existing poor functioning concrete stormwater drainage channel and lifting it to a higher functioning ecological state through stream restoration. The restoration will reduce stream velocity and reconnect the stream to its floodplain to reduce downstream flooding. The stormwater treatment plan involves restoration of the channel to provide ecological uplift, shading of the stream and floodplain depressions that will reduce velocity and trap sediment. Although this project will modify the stream channel, the overall impacts will be positive for water quality and stormwater management. The onsite stormwater management features will serve to reduce runoff, improve water quality, capture floatables and sediment and reduce the flashy nature of urban roadway runoff. This is especially true for smaller storm events that create most of the erosion and cause the majority of stream stability issues that lead to flooding problems. Furthermore, in compliance with E.O. 11988 and E.O. 13690 and the subsequent guidelines release by FEMA and the USACE, the planning and design process for this project will result in meeting the goal "to restore and preserve the natural and beneficial values served by floodplains". By removing the concrete channel through the majority of the site, past federally funded actions that removed the natural stream function will be mitigated resulting in a net benefit to floodplain.

The onsite stormwater management plan includes three bioretention areas to capture and treat the first 1.5 inches of runoff. Two bioretention areas will capture the 90th percentile storm (1.5 inches) from adjacent roadways that drain through the site, reducing pollutant loads, reducing erosion, and mitigating the peak flow effects from impervious cover. The third bioretention area will mitigate the impact of the parking lot, driveway, restroom, and walkways that are being added to the site. All three bioretention areas will have underdrains due to the high groundwater and clay soils onsite. The underdrains will slowly release clean runoff into the stream to provide high quality base flow.

ART:

The focus of the gateway, the monumental sculpture-TRIBUTE, serves as an icon associated with Lackland Air Force Base within the City of San Antonio. The sculpture, created in collaboration between the Project Landscape Architect and local Artist George Schroeder, consists of five forms. The arrangement creates a gathering space intended to be dynamic and interactive as it can be touched, walked within and around. Its aesthetic is that of an airplane and by riveting the aluminum cladding to the substructure, it replicates aircraft construction. With the forms seemingly rising out of the ground, the monument captures light, reflects the sun and casts large shadows.

The tallest element is an obelisk-type form reaching 75' high representing our country and the community of San Antonio. The narrowest edge of the obelisk is aligned to our nation's capital paying homage to Washington, D.C. The three arched forms represent the arms of the military protecting our great Nation. Each arm displays one of the three Core Values of the United States Air Force. The fifth element serves as the direct reference to Lackland Air Force Base. The form representing a wing is intentionally placed at an angle to contrast with the other elements, contributing to the visual tension of the overall piece.

From dusk to dawn, the experience of the gateway is enhanced through the use of LED lighting. Six days a week, white light will illuminate the sculpture. On Fridays, to celebrate the weekly graduation of over 500 new Airmen, United States Air Force blue will illuminate the interior space of the sculpture proclaiming the significance of this day.

INTERPRETIVE OPPORTUNITIES:

The site will include interpretive signage to inform visitors of the LID features and their benefits to both human and wildlife habitat. The four interpretive opportunities encompass three overlook nodes around the perimeter of the stream basin and specific planting areas. The graphic panels afford the opportunity to learn about:

- The role of the military to San Antonio and inspiration behind the monument.
- Low Impact Development (LID) systems,
- Channel realignment and naturalization of the drainage way
- Carefully selected vegetation and also a butterfly habitat for the endangered Monarch butterfly, as well as migrating birds, supporting our City Mayor Ivy R. Taylor's commitment as the first Monarch Champion participating in the National Wildlife Federation's Mayor's Monarch Pledge.