

**FINAL REPORT**  
**MSRC CLEAN TRANSPORTATION FUNDING**  
**CONTRACT NO. ML14096**

SAN GABRIEL RIVER BIKE TRAIL UNDER INTERSTATE 10 FREEWAY DRAINAGE  
IMPROVEMENTS

**Los Angeles County Public Works**



March 2, 2020

**Prepared for the Mobile Source Air Pollution Review Committee (MSRC) under  
the AB2766 Discretionary Fund Work Program**

## ACKNOWLEDGEMENTS

Los Angeles County Public Works wishes to acknowledge the Mobile Source Reduction Review Committee for its funding and program support, and express gratitude for their staff's patience and guidance.

This report was submitted in fulfillment of MSRC Contract #ML14096 and San Gabriel River Bike Trail Under Interstate 10 Freeway Drainage Improvements Project by Los Angeles County Department of Public Works under the partial sponsorship of the Mobile Source Air Pollution Reduction Review Committee (MSRC). Work was completed as of February 24, 2020.

## DISCLAIMER

The statements and conclusions in this report are those of the contractor and not necessarily those of the Mobile Source Air Pollution Reduction Review Committee (MSRC) or the South Coast Air Quality Management District (SCAQMD). The mention of commercial products, their sources or their uses in connection with material reported herein is not to be construed as either an actual or implied endorsement of such products.

## **PROJECT SCOPE**

Re-grade and re-construct approximately 200 feet of bikeway to improve drainage while maintaining 10-foot vertical clearance and install grated catch basins, as needed.

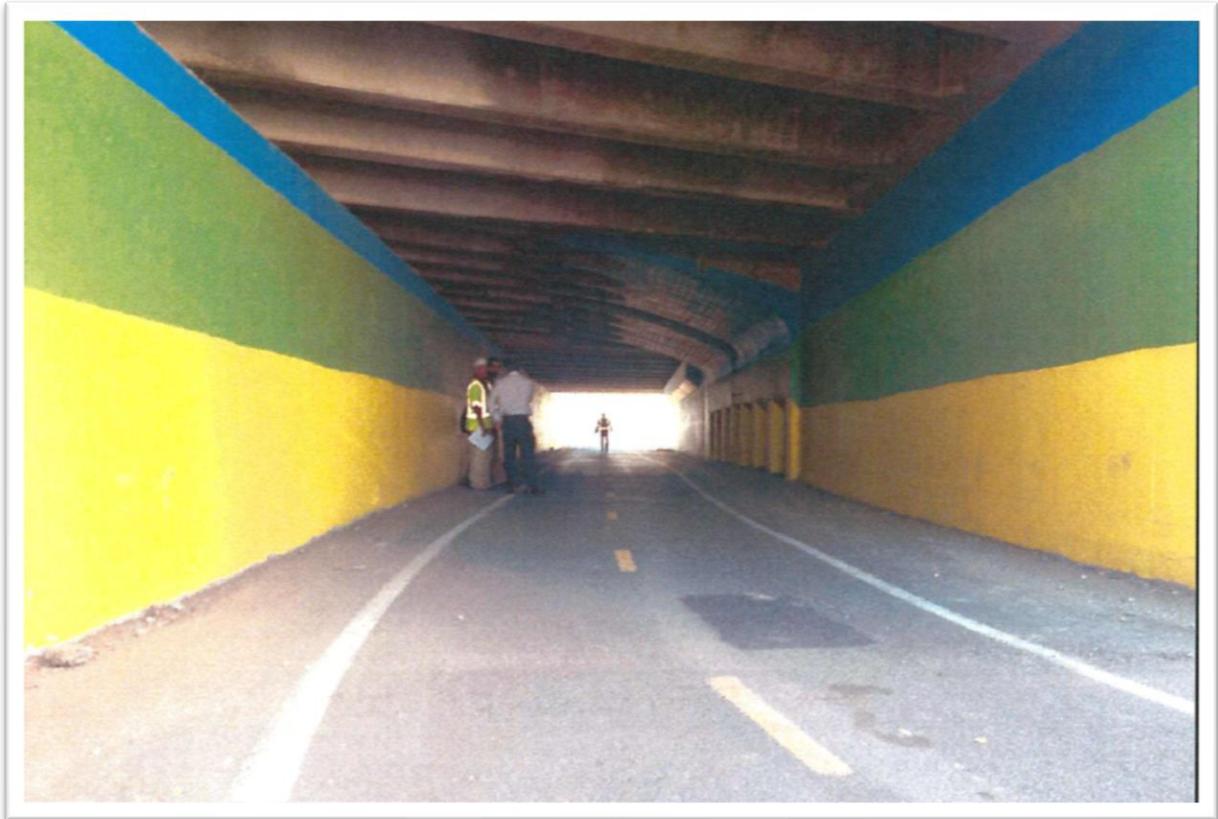
## **PURPOSE AND BACKGROUND**

The San Gabriel River bike trail is the longest in Los Angeles County, running almost 40 miles from the ocean in Long Beach to the San Gabriel Mountains in Azusa. It is a major regional active and alternative transportation facility.

In 1996, a drainage improvement project was completed on this segment of the bike trail. A shotcrete v-ditch drain, and inlet structure were constructed to allow for stormwater drainage. However, with the I-10 Freeway widening project by Caltrans in 2002; the pavement overlay of the trail adversely altered the drainage flow towards the drain inlet. Consequently, a low point or sump was created where water and mud accumulated following rain events.



2016 - View from South Side of inundated bike path tunnel - water falling from I-10



2016 - View from North side of bike path

In 2008, following a complaint letter from the public, a concept study was initiated. The complaint stated that several inches of standing water and mud ponded on the bike path, which also serves as a pedestrian and horse trail. This water and mud significantly hindered public access along the underpass of the freeway.

In fact, the water and mud hindered public access significantly enough to reduce the number of bicycle commuters traveling along the San Gabriel River bike trail. The most-likely substitute transportation mode employed by these bike commuters was driving personal motor vehicles on the San Gabriel River Freeway, Interstate 605, which parallels its namesake river and bike trail.



2016 - Bike path tunnel south side  
channel invert, 12" corrugated metal pipe and headwall

## **EMISSIONS BENEFITS**

The California Air Resources Board (CARB) provides Cost-Effectiveness Analysis Tools on their website (<https://ww3.arb.ca.gov/planning/tsaq/eval/eval.htm>). These tools enable quantifying the cost-effectiveness of this project in terms of cost per pound (or ton) of pollutants reduced. These tools are provided to be used to evaluate projects and to report on the Motor Vehicle Registration Fees Program.

Recent counts indicate approximately 600 cyclists and pedestrians traverse this stretch of the San Gabriel River Trail daily.

The calculations below follow CARB's Cost-Effectiveness Analysis Tool methodology for Bicycle Facility projects in the *Methods to Find the Cost-Effectiveness of Funding Air Quality Project* (May 2005):

**Inputs to Calculate Cost-Effectiveness:**

Funding Dollars (**Funding**): \$74,186

Effectiveness Period (**Life**): 20 years

Days (**D**): 365

Average Length (**L**) of bicycle trips: 5.0 miles

Annual Average Daily Traffic (**ADT**): 25,000

Adjustment (**A**) on ADT for auto trips replaced by bike trips from the bike facility: 0.0027

Credit (**C**) for Activity Centers near the project: 0.002

**Emissions Factors (From Table 3, for a 20-year Life):**

	Auto Trip End Factor	Auto VMT Factor
ROG Factor	0.866 grams/trip	0.229 grams/ mile
NOx Factor	0.387	0.269
PM10 Factor	0.016	0.219

**Calculations:**

$$\begin{aligned} \text{Annual Auto Trips Reduced} &= (D) * (ADT) * (A + C) \\ &= (365) * (25,000) * (0.0027 + 0.002) \\ &= 42,888 \end{aligned}$$

$$\begin{aligned} \text{Annual Auto VMT Reduced} &= (\text{Auto Trips}) * (L) \\ &= (42,888) * (5.0) \\ &= 214,440 \end{aligned}$$

**Annual Emission Reductions (ROG, NOx and PM10) in lbs. per year**

$$\begin{aligned} &= [(\text{Annual Auto Trips Reduced}) * (\text{Auto Trips End Factor}) \\ &\quad + (\text{Annual Auto VMT Reduced}) * (\text{Auto VMT Factor})] / 454 \end{aligned}$$

**ROG:**  $[(42,888 * 0.866) + (214,440 * 0.229)]/454 = 190$  lbs. per year

**NOx:**  $[(42,888 * 0.387) + (214,440 * 0.269)]/454 = 164$  lbs. per year

**PM10:**  $[(42,888 * 0.016) + (214,440 * 0.219)]/454 = 105$  lbs. per year

Total ROG + NOx + PM10 = 459 lbs. per year

Capital Recovery Factor (CRF) =  $i(1 + i)^n / ((1+i)^n - 1)$

Where n = project life = 20 years

i = discount rate = 3%

CRF =  $[0.03 * (1+0.03)^{20}] / ((1+0.03)^{20} - 1)$

CRF = 0.07

**Cost-Effectiveness of Funding Dollars:**  $(CRF * Funding) / (ROG + NOx + PM10)$

$= [0.07 * 74,186] / [459]$

**= \$11.31 per lb.**

## **FUTURE ACTIONS**

The scope originally additionally called for installation of lighting in the underpass. It was ultimately dropped due to the design including solar panels that would require installation in the river levee and thus require a permit from the US Army Corps of Engineers. This was an oversight that prevented the lighting's timely installation. Installation of lighting at bike path underpass locations will be given consideration in a separate upcoming project.

## **PROJECT PICTURES**

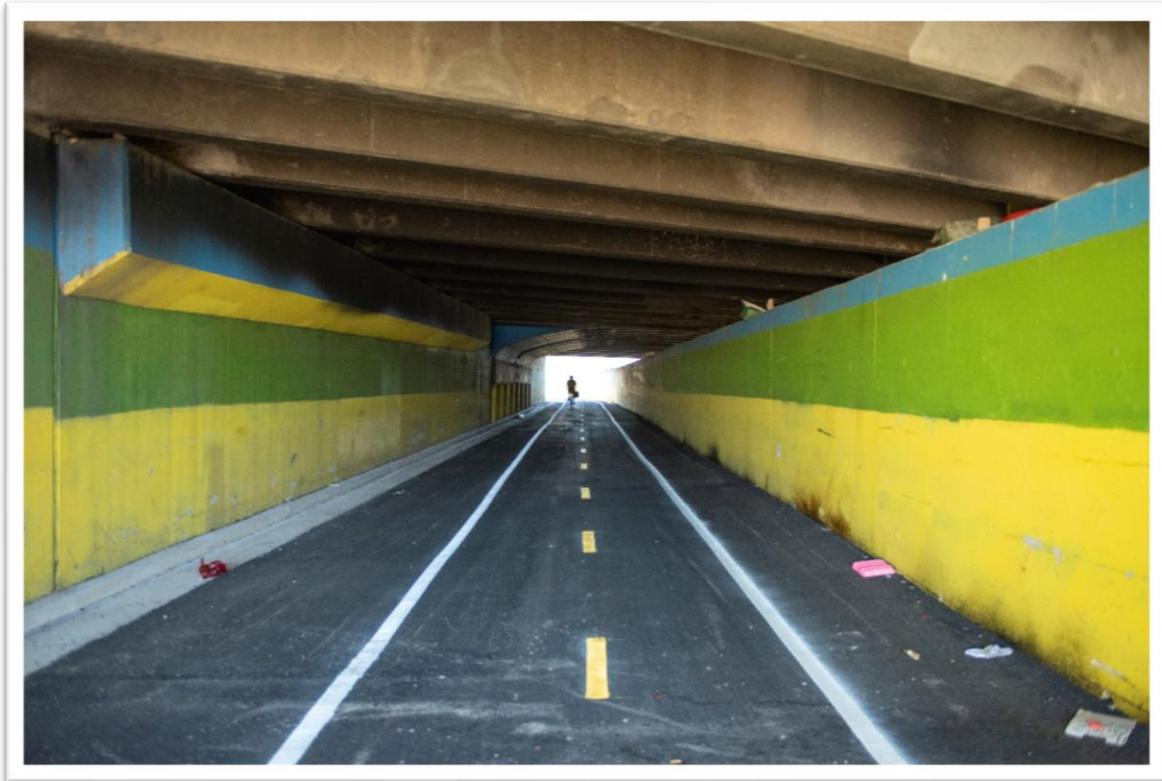
The finished project as re-constructed by the Los Angeles County Department of Public Works Road Maintenance and Operational Services Divisions staff:



2020 - Bike path tunnel – South side – PCC v ditch drain, striping and AC pavement



2020- bike path tunnel - South side – new striping, AC pavement, PCC curb and gutter with transition to v ditch



2020 - Looking north inside improved bike tunnel,  
new AC Pavement, striping and curb and PCC gutter on left

## PROJECT OUTREACH

The public outreach component of the grant included installation of signage with MSRC logos and Tweets acknowledging MSRC and the SCAQMD.

Signs promoting MSRC's co-funding of the project improvements were installed on the trail approaches at the project location.



2020 - Bike trail tunnel – south side

Public Works' official Twitter account also tweeted the following:

← **Tweet**

 **LA Co Public Works** ✓  
@LACoPublicWorks

Keeping #LACounty bike paths safe & reducing air pollution for the region is a top priority. A new drainage system was installed along the San Gabriel River bike path to alleviate #LARain flooding—making it a sustainable alternative to driving.



3:54 PM · Mar 2, 2020 · Twitter Web Client

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