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LA LOMA - WALNUT CREEK TRAIL CONNECTOR PRELIMINARY ENGINEERING REPORT

October 2019

2019

LA LOMA - WALNUT CREEK TRAIL CONNECTOR

PRELIMINARY ENGINEERING REPORT

CIP NO: 10796.017

PREPARED BY:

ENGINEERING SERVICES DIVISION

PUBLIC WORKS DEPARTMENT

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October 2019

PRELIMINARY ENGINEERING REPORT

LA LOMA - WALNUT CREEK TRAIL CONNECTOR

From Sara Drive to Southern Walnut Creek Trail near Jain Lane

(East Austin)

Subproject ID Number: 10796.017

FDU: 8119.6207.L220

PROJECT TEAM

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EXECUTIVE SUMMARY

This Preliminary Engineering Report (PER) presents the findings of the preliminary engineering analysis and recommendations for the proposed La Loma Trail alignment connecting Eastside Memorial High School and the Walnut Creek Trail with the adjacent East Austin neighborhoods such as Govalle/Johnston Terrace and MLK-183 Neighborhood. This preliminary engineering report identifies the options for alignment, cost, and material that are the basis for the final recommendation. The City of Austin Public Works Department, Austin Transportation Department, City of Austin Parks and Recreation Department (PARD), Austin Energy, City of Austin Watershed Protection Department, City of Austin Planning and Zoning Department, Development Services Department and Capital Metro have all provided input for possible La Loma Trail alignments.

The scope of the PER includes a verification and detailed inventory of the project objectives, scope, inventory of existing utilities and other improvements within the project area, possible trail creek crossing locations, and benefits and costs of different alignment options. The benefit cost analysis of each alignment includes impacts to the floodplain for both the 25 year (4% annual chance event) and 100 year (1% annual chance event) ultimate City of Austin floodplains, the Critical Water Quality Zone, the Erosion Hazard Zone (EHZ), known critical environmental feature setbacks, topography constraints, public/neighborhood support/input, existing utilities, trees, and natural drainage patterns. The scope also includes the trail material options, the type of crossings, research of surrounding existing improvements that impact alignment options, coordination of an environmental screening document and Environmental Resource Inventory and field survey during the PER development, a summary of permitting requirements, assessment of additional easement requirements, a recommendation for overall scope of proposed design and construction, preliminary opinion of probable construction cost, and proposed preliminary project schedule.

The proposed urban trail will be a shared-use path connecting neighborhoods, parks and schools. In addition, the trail will serve as a recreational amenity to the surrounding community and its residents. The trail will provide a safer route for the students to go to Eastside Memorial High School daily. Also, this trail will provide access to the community parks and swimming pool on the south side of the railroad tracks.

This document provides an analysis of the proposed trail area and an explanation of the process used to derive the recommended alignment. Three routes were analyzed for connectivity / ease of access, permitting complexity, environmental impacts, cost, Easement / ROW requirements, and tree impacts.

The recommended route is Alternative 1b Option 3 (**Figure 3**), located east of Tannehill Branch Creek, which follows the existing beaten path, crosses the railroad tracks with an at-grade crossing, and connects with Sara Drive. As per the coordination with the public, stakeholders and other departments, it is recommended to cross the tracks with a proposed pedestrian at-grade crossing with the 250 FT buffer zone on either side. Anticipated construction cost for the trail with at-grade crossing is $1.8M with the budget estimate of $3.3M, which includes all associated cost. Additionally, about $2M is needed to extend the railroad track siding towards Airport Boulevard by a minimum of 512 FT. Total overall cost for the recommended option will be 5.3 million.

In addition to the main trail alignment, additional connections at Lott Avenue were explored as supplemental to the main route selected. The proposed Lott Avenue Connection options are located within proximity of each other (See **Figure 1**). Probable construction cost for both the options will be close to $0.5M with the budge estimate of $0.9M. Proposed Option 1 will be the preferred alternative, which is located more towards south side, ultimately connecting with the proposed La Loma Trail.

Alternatives (In millions)	ALT 1a	ALT 1b-OPT1	ALT1b-OPT2	ALT1b-OPT3	ALT 2	ALT3	LOT1	LOT2
Construction Cost Estimates	**2.07**	***2.64**	**2.93**	**1.78**	**1.43**	**1.12**	**0.50**	**0.48**
A/E Cost	1.07	1.36	1.51	0.90	0.72	0.57	0.29	0.28
Surveying	0.07	0.09	0.10	0.06	0.05	0.04	0.03	0.02
ROW Acquisition **	0.05	0.10	0.05	0.05	0.10	0.05	0.08	0.01
AIPP	0.07	0.09	0.09	0.06	0.05	0.04	0.02	0.02
Miscellaneous Costs ***	0.17	0.22	0.24	0.11	0.08	0.07	0.04	0.03
Contingency 10%	0.35	0.45	0.49	0.29	0.24	0.19	0.09	0.08
Railroad associated cost	N/A	N/A	N/A	2.00	2.00	N/A	N/A	N/A
GRAND TOTAL COST	**3.84**	**4.94**	**5.41**	**5.25**	**4.67**	**2.06**	**1.04**	**0.92**

*Note 1: * Proposed bridge cost not including the possible overhead utility relocation cost.*

*** ROW acquisition cost is preliminary only based on Travis Central Appraisal District (TCAD) Land Appraised Value in 2017 (to be determined by City of Austin Real Estates Services Office in design phase)*

**** Miscellaneous costs include permitting and testing*

Note 2: Segment 1 North of Substation which connects the Alf Avenue with Alternative 1 was analyzed and proposed construction cost will be $ 300,000.

Table 1: Alternative Analysis Matrix – Proposed La Loma Trail

		ALTERNATIVES						
		ALT1a	***ALT1b OPT1***	***ALT1b OPT2***	***ALT1b OPT3***	***ALT2 OPT1***	***ALT2 OPT2***	***ALT3***
	PARAMENTER	Underpass at Tannehill	Overpass near Tannehill	Underpass near Tannehill	At grade near Tannehill	Underpass at Jain Ln #	At Grade at Jain Ln	Underpass at Fort Branch
1	Connectivity/ Ease of access	8	6	8	4	13	9	16
2	Permitting Complexity	11	7	11	7	9	7	11
3	Environmental Impacts	4	4	4	4	3	3	5
4	Easement/ ROW	3	2	3	2	5	5	2
5	Tree Impacts	4	4	4	4	1	1	5
	TOTAL SCORING	**30**	**23**	**30**	**21**	**31**	**25**	**39**
Note 1: See Chapter 5 for Evaluation Criteria and Analysis of the above scoring. The alternative with the lowest score is recommended which is Alternative 1b-Opt3, at-grade crossing near Tannehill Branch Creek.								
6	Construction Cost	$2.07 M	$2.64 M	$2.93 M	$1.78 M	#	$1.43 M	$1.12 M
Railroad Construction Cost					$1.30 M		$1.30 M	
Total Construction cost		$2.07 M	$2.64 M	$2.93 M	$3.08 M	#	$2.73 M	$1.12 M
Note 2: The estimated construction costs are very preliminary based on the available information. The level of accuracy will increase as the design moves forward and survey becomes available. Alternative 3 has the lowest construction cost, which has the highest impacts. # This option will not work due to design constraint in order to keep 8 FT cover under tracks.								

CHAPTER 1 - INTRODUCTION

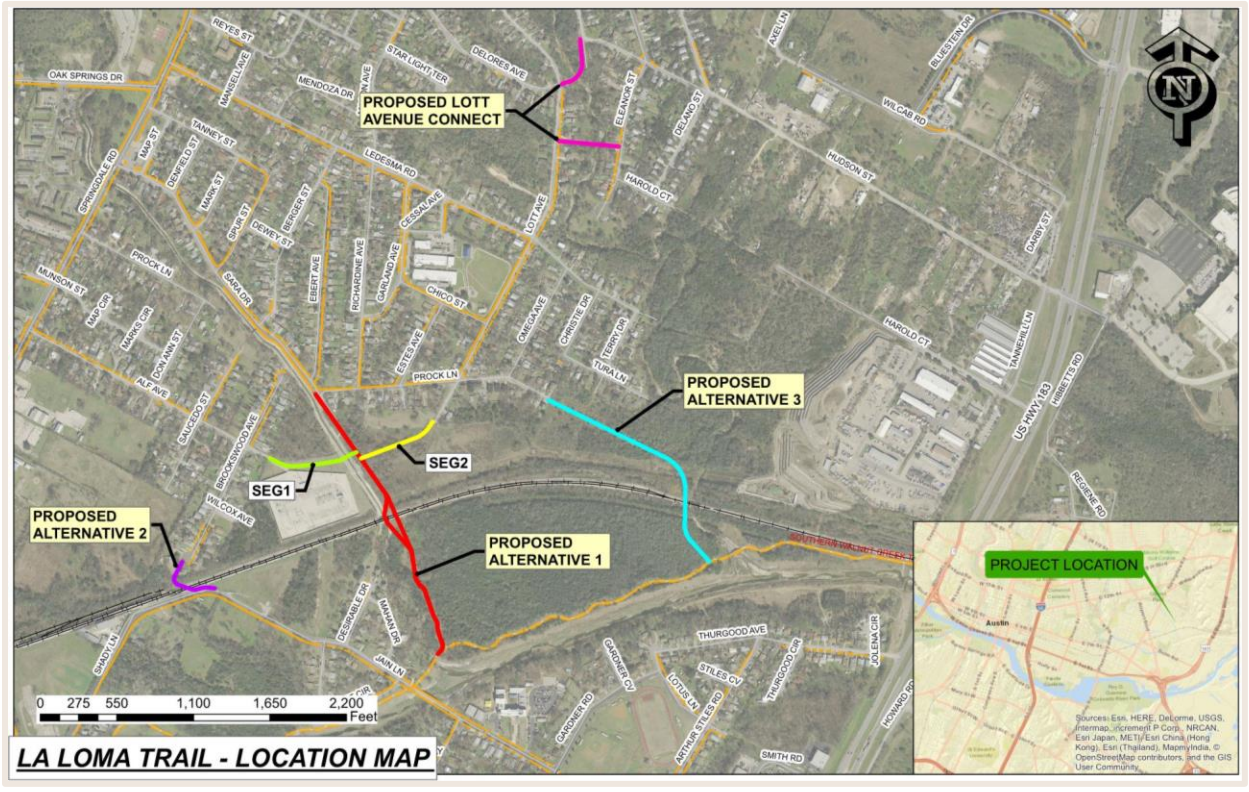
The Govalle / Johnston Terrace neighborhood primarily consists of single- family homes, separated from Eastside Memorial High School by Boggy Creek, East Boggy Creek Greenbelt, Tannehill Branch Creek, Capital Metro Railroad, Austin Energy's Kingsbury Substation and Solar Farm. The major arterials such as Airport Blvd and Highway 183 are barriers for pedestrians needing to cross and access the Eastside Memorial High School. In order to reach the high school, students have created an alternative, unsafe route, which follows proposed Alternative 1.

PROJECT LOCATION

The general project area is located east of Airport Blvd and west of US 183, near Austin Energy's transformer site, extending through East Boggy Creek Greenbelt area. The proposed trail will begin at Sara Drive and follow along the Tannehill Branch Creek, cross the existing railroad and connect with the existing sidewalk / trail in order to provide connectivity to Eastside Memorial High School.

The project is located within the Boggy Creek Watershed and Tannehill Branch Watershed. The project area is also located within the Johnston Terrace Neighborhood Plan and MLK-183 Neighborhood plan.

Figure 1- Location Map



PROJECT BACKGROUND

For over 50 years, students of Eastside Memorial High School have carved informal paths in the landscape to get to school, crossing both creeks and railroad tracks and trekking through wooded and grassy, overgrown areas. The daily challenge these students have faced to get to school has been a community topic for years and has recently received additional attention in the form of a master's thesis abstract (2016) as well as a short documentary film (2015).

University of Texas Master of Science Community and Regional Planning student Vanessa Mendez, B.A. chose the mobility challenges and obstacles facing the students of Eastside Memorial High School in their daily commute to school as her abstract in "*A Tough Route to Eastside Memorial High School: The Issue of Educational Inequality in Austin, Texas".* In Mendez' thesis, she explores the history of inequity and marginalization in East Austin and provides a series of recommendations for alternative routes and infrastructure improvements for students trying to access Eastside Memorial High School. (**Appendix H**)

*La Loma (*Or The Place Sometimes Called *"Hungry Hill")* is a documentary film produced by a filmmaker and two high school students about their stories of walking to school every day though the woods and waterways and across the railroad tracks. . This documentary highlights the lack of connectivity between the students in this neighborhood and their school, which is within the two-mile zone that AISD does not offer bus service. Consequently, an unsafe footpath has been created and taken by their parents, themselves, and other people in the neighborhood for generations. The video can be found at https://vimeo.com/123127559.

This project is referred in thinkEast Community Vision and Masterplan – Jan 2016. Attached in **Appendix - G**

Southern Walnut Creek Trail (SWCT): Southern Walnut Creek Trail is a multi-use urban trail located in East Austin, extending from Govalle Park to the Walnut Creek Sports Park at Johnny Morris Road and Daffan Lane. The trail goes across the La Loma project location. The proposed La Loma Trail will connect to the existing Sothern Walnut Creek Trail in order to provide greater connectivity to the neighborhood. See **Appendix F** for the SWCT alignment.

PROJECT SCOPE AND OBJECTIVES

The proposed La Loma Trail project is funded for Preliminary Engineering Report by the 2016 Mobility Bond Program.

The objective of this project is to connect the residential neighborhood along Springdale Road north of Airport Boulevard to the existing Sothern Walnut Creek Trail, the Eastside Memorial High School and the community on the south side of the railroad tracks. Additionally, about 500 linear feet of trail will connect the neighborhood east of Fort Branch Creek to the west side from Eleanor Street to Lott Avenue, providing greater connectivity with the proposed La Loma trail.

The existing Southern Walnut Creek trail is a 10 FT wide urban trail and the La Loma trail is going to be a connector and can be a 10 FT wide. Urban Trails in Austin are recommended to be a 12 FT wide hard surface path to accommodate a variety of trail users simultaneously without conflict. The proposed La Loma trail will be a 12 FT wide concrete trail, per the City of Austin Urban Trail standard

detail (See **Appendix I).** The overall corridor width should be at least 20' wide to allow for a minimum of 4' of clearance between adjacent features and either side of the urban trail. The edge of the urban trail should be at least 2' away from adjacent trees or landscaping.

The proposed La Loma Trail has three suggested main alternatives:

Alternative 1 - Proposed Alternative 1 approximately 2,500 LF of trail segment connecting Sara Drive / Prock Lane to existing Southern Walnut Creek Trail (SWCT) near Tannehill Branch Creek. The proposed alternative alignments will follow the existing beaten path from SWCT to the railroad track and will continue parallel along the left bank of the Tannehill Branch Creek. A railroad crossing and two creek crossings need to be addressed for this alignment. Options were analyzed on multiple methods of railroad crossings such as overpass, underpass and at-grade.

Alternative 1a – Proposed trail will underpass the railroad tracks utilizing the existing railroad bridge opening.

Figure 2: Alternative 1a

Alternative 1b – Option 1 – Proposed trail will cross the railroad tracks about 100 FT from the Tannehill Branch Creek centerline. Proposed trail will cross the railroad tracks via an overhead bridge with 23'-4" clearance. (See **Appendix – B**)

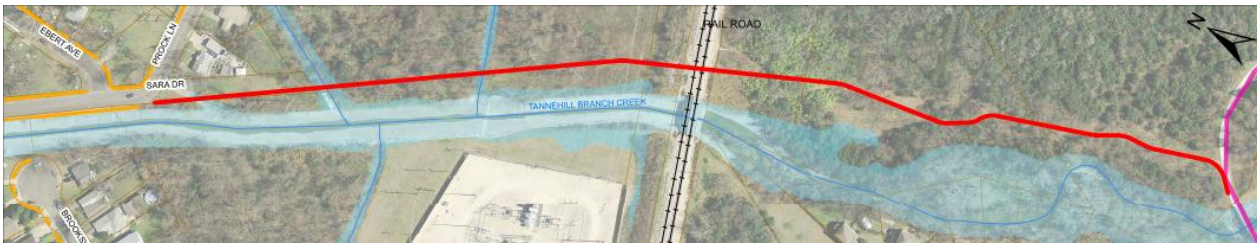
Alternative 1b – Option 2 – Proposed trail will underpass the railroad tracks with proposed Contech Tunnel Liner Plate near Tannehill Branch Creek. (See **Appendix – B**)

Alternative 1b – Option 3 – Proposed trail will cross at-grade near Tannehill Branch Creek. This option will require possible relocation of rail car storage length towards west side. (See Appendix B for the at-grade crossing possible option map)

Segment 1– This segment will come along north of Kingbery Substation and connect with proposed La Loma trail Alternative 1 (See Location Map: **Figure 1**). This segment will require a pedestrian Bridge to cross Tannehill Branch Creek.

Segment 2– This segment will connect the Lott Ave through the Austin Energy Solar Site, which is not feasible due to fenced Solar Site.

Figure 3: Alternative 1b

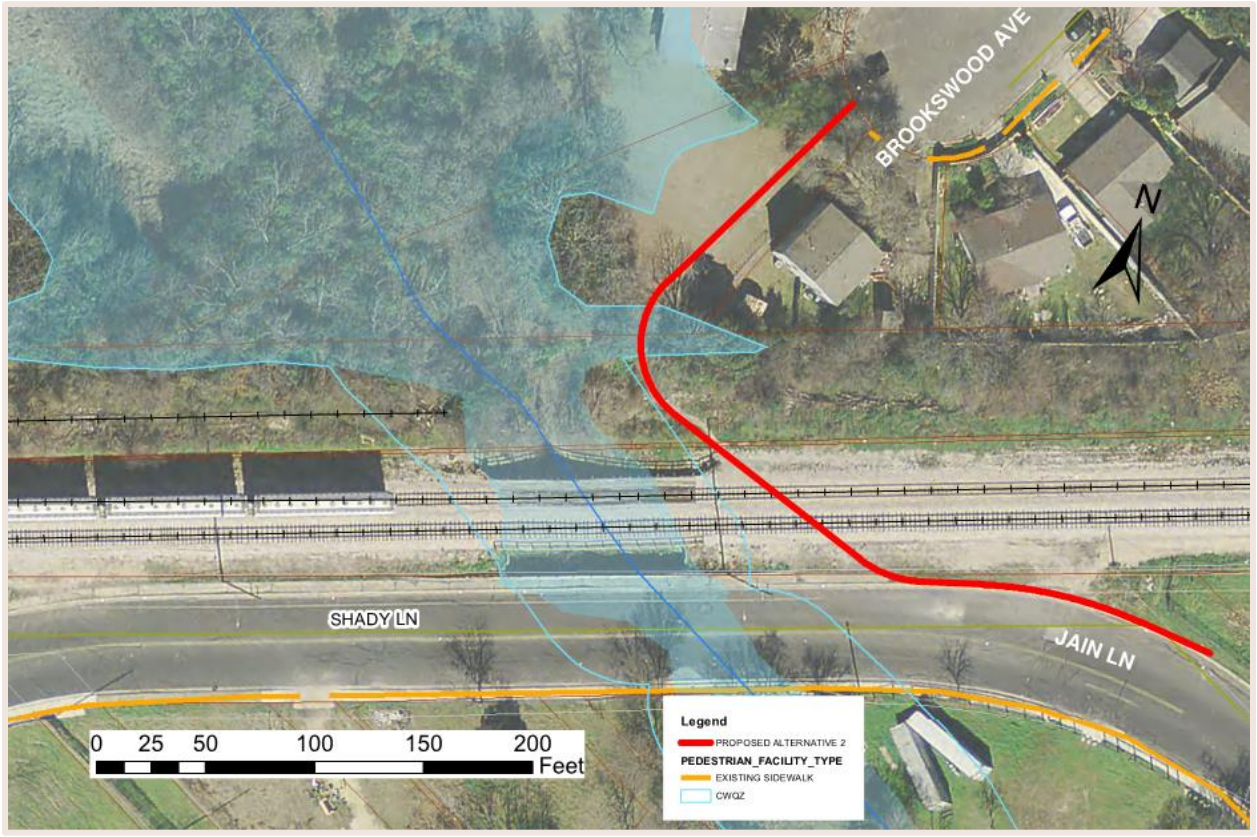


Alternative 2 – Proposed Alternative 2 will be approximately 300 LF of trail connecting Brookswood Avenue and Jain Lane through the vacant parcel at 1100 Brookswood Avenue (TCAD parcel No. 0204190113) and cross the railroad tracks. This alignment can follow the existing beaten path in the vacant parcel and cross the tracks angled to align with Jain Lane.

Alternative 2a – Option 1 – Proposed trail will underpass the railroad tracks at Jain Lane. This option will not be analyzed completely due to design constraints. Railroad underpass requires 8FT cover under railroad tracks. The railroad tracks and Jain lane are approximately the same elevation. In order to keep the ADA slope (Max 5%) for the proposed trail and 8FT cover for the railroad, the underpass design for this alternative is not possible.

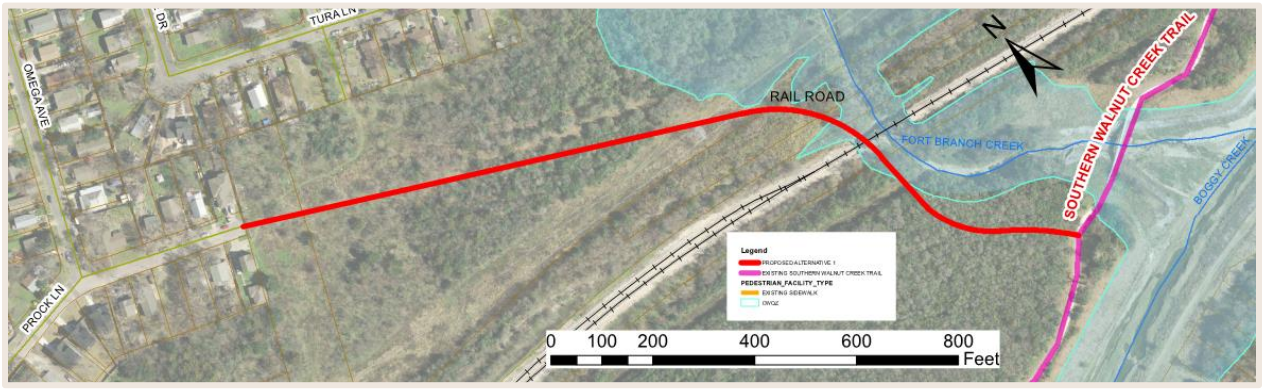
Alternative 2a – Option 2 – Proposed trail will cross at-grade near Jain Lane.

Figure 4: Alternative 2



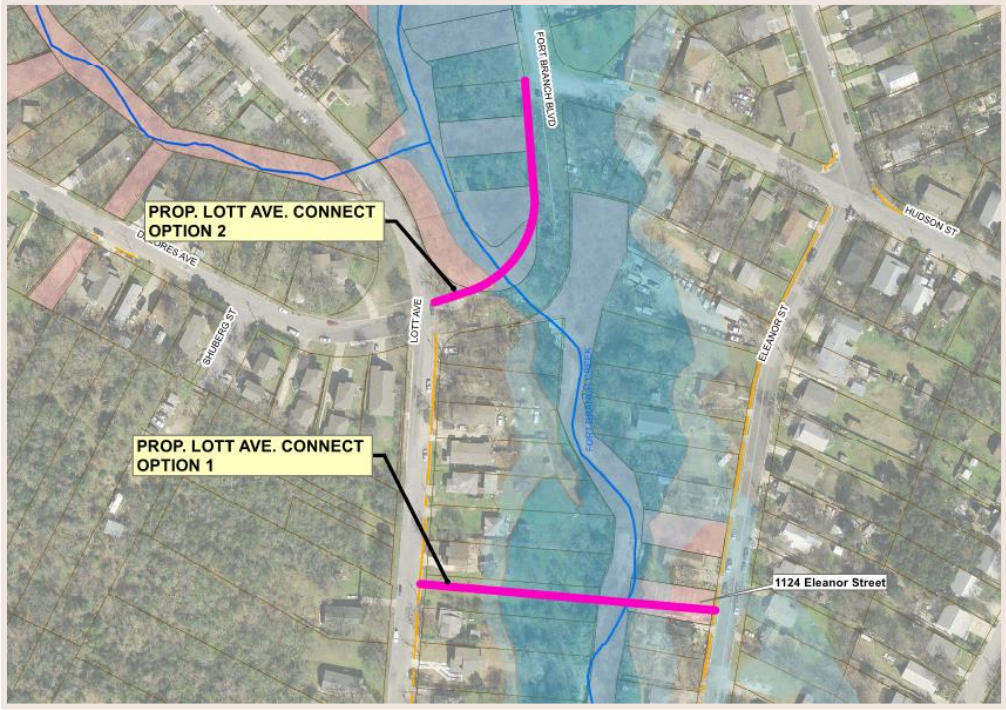
Alternative 3 – Proposed Alternative 3 will be approximately 1,800 LF of trail connecting the end of Prock Lane with the SWCT near Fort Branch Creek. This alternative will begin at Prock Lane, continue eastward parallel to Tura Lane, turn towards the south to cross the railroad track utilizing an existing railroad bridge, and then connect with the existing SWCT.

Figure 5: Alternative 3



Lott Avenue Connection: Proposed 500 LF of Lott Avenue connection will connect Eleanor Street with Lott Avenue to provide access to the community in the east of Fort Branch Creek to La Loma trail. This connection will be through the vacant lot at 1124 Eleanor Street (TCAD 0208210617) and 1125 Lott Avenue (TCAD 0208210650). This proposed trail segment will cross the Fort Branch creek.

Figure 6: Lott Ave connection



CHAPTER 2 – EXISTING CONDITIONS

TOPOGRAPHY

General project area is located within the City of Austin, MAPSCO grid 586Y, COA grid M21 & M22. Based on City of Austin Geographic Information System (GIS) 2012 LiDAR, the terrain is shown below in **Figure 6**. The elevation of the project area is approximately 450 feet mean-sea-level (MSL) and low in the creek areas.

The project area south of the railroad is heavily wooded with a 5' to 7' wide cleared, informal pathway created by the community for better accessibility. The project area north of the railroad adjacent to the tracks is also a cleared area with some existing vegetation and trees. Further north of the railroad close to Sara Drive, it is highly wooded and there is no existing pathway created by the community. Residents appear to skip this heavily wooded area and use the concrete-lined drainage channel to walk across.

There are three waterways, Tannehill Branch Creek, Fort Branch Creek and Boggy Creek, which have concrete channels along the pedestrian path.

The majority of the La Loma Trail Alternative 1 alignments will run parallel to the Tannehill Branch Creek. Alternative 2 will be close to Boggy Creek. Alternative 3 will utilize the Fort Branch Creek underpass at the railroad.

Figure 7: Existing Terrain Map

EXISTING SIDEWALKS AND CONNECTIVITY

The residents from the north side of the railroad tracks do not have any access to cross the existing railroad tracks that extend east and west at the project area. The existing railroad tracks, waterways and deep woods are barriers for the pedestrians trying to access schools and surrounding neighborhoods. Airport Blvd is the only nearby road that crosses the tracks and was recently improved with sidewalks that connect the existing roadway bridge between Bolm Road and Springdale Road. The existing bridge has a 4 FT wide sidewalk, which is narrow and close to the travel lane. The existing sidewalks around the project area are shown on the location map. (See **Figure 1**)

Figure 8**:** Airport Blvd: Recent Sidewalk Project

Looking North: Existing 4 FT wide sidewalk at bridge

Looking North from the bridge: The new sidewalks constructed in 2016.

Figure 9: Pedestrian Overpass at Sara Drive

The east and west sides of the Sara Drive neighborhood are separated by the Tannehill Branch Creek, which can be crossed with a pedestrian overpass located near Berger Street at Sara Drive. There is no sidewalk connectivity to this bridge on the west side of Sara Drive.

The thinkEAST Master Plan shows a proposed pedestrian crossing at the railroad track near Jain Lane, which will connect the neighborhood on the west side of Sara Drive to the thinkEAST community on the south side of the railroad tracks. **(See Appendix G)**

EXISTING UTILITIES AND FUTURE IMPROVEMENTS

The proposed La Loma Trail Improvements Plan has been submitted to Austin Utility Location Coordination Committee (AULCC) to identify existing utility conflicts and information within the project area. The submittal to AULCC allows the utility providers an opportunity to determine if any necessary upgrades or existing improvements to their facilities fall within the project area. A summary of the responses, copies of e-mail correspondence and utility responses from agencies, and notification of the project have been provided in **Appendix C**

Austin Energy, Texas Gas Services, Austin Water, AT&T, Spectrum, GAATN, and Watershed Protection Department have facilities in the project vicinity. The AULCC process coordinated with all the utility providers and indicated that this project is clear and there are no conflicts or planned improvements in the project area. Austin Energy has overhead and underground facilities in this area. There are electrical transmission lines that parallel the railroad tracks. Austin Energy has built a solar farm project near Tannehill Branch Creek, which will provide an easement for the proposed Alternative 1. Additionally, alternative 1 has an existing wastewater line along the north bank of the Tannehill Branch Creek.

Proposed Jain Lane street realignment is in the project vicinity, which will include approximately 1,200 linear feet of realigned roadway with 40FT pavement section with bike lane and sidewalks, waterline, wastewater line replacement and all applicable drainage and water quality improvements within the proposed 64-foot Right-of-Way (ROW). See **Appendix J** for proposed Jain Lane Street Realignment preliminary plan and typical cross sections.

ENVIRONMENTAL RESOURCE INVENTORY

As a condition of the Preliminary Engineering Report for an urban trail, an environmental screening document has been prepared to evaluate the impacts of proposed alignments on the biological and cultural resources within the project area. An environmental consultant was selected from the City's rotation list to prepare the document. APTIM (Environmental Consulting) completed the environmental screening document, and it is included in **Appendix E.**

There are no Critical Environmental Features within the project area, as per available GIS data with City of Austin. The project area is not within the Edwards Aquifer Contributing / Recharge Zone. There are no springs, rock out cropping or wetlands within the project area.

RAILROAD RIGHT-OF-WAY

Capital Metro Transportation Authority owns the areas of the tracks where the alternatives cross the existing railroad. The small parcel north of the tracks is owned by Missouri Kansas Texas Railroad (TCAD # 0205210901), and the parcel north of the tracks near Fort Branch Creek is owned by City of Austin (TCAD # 0205210902).

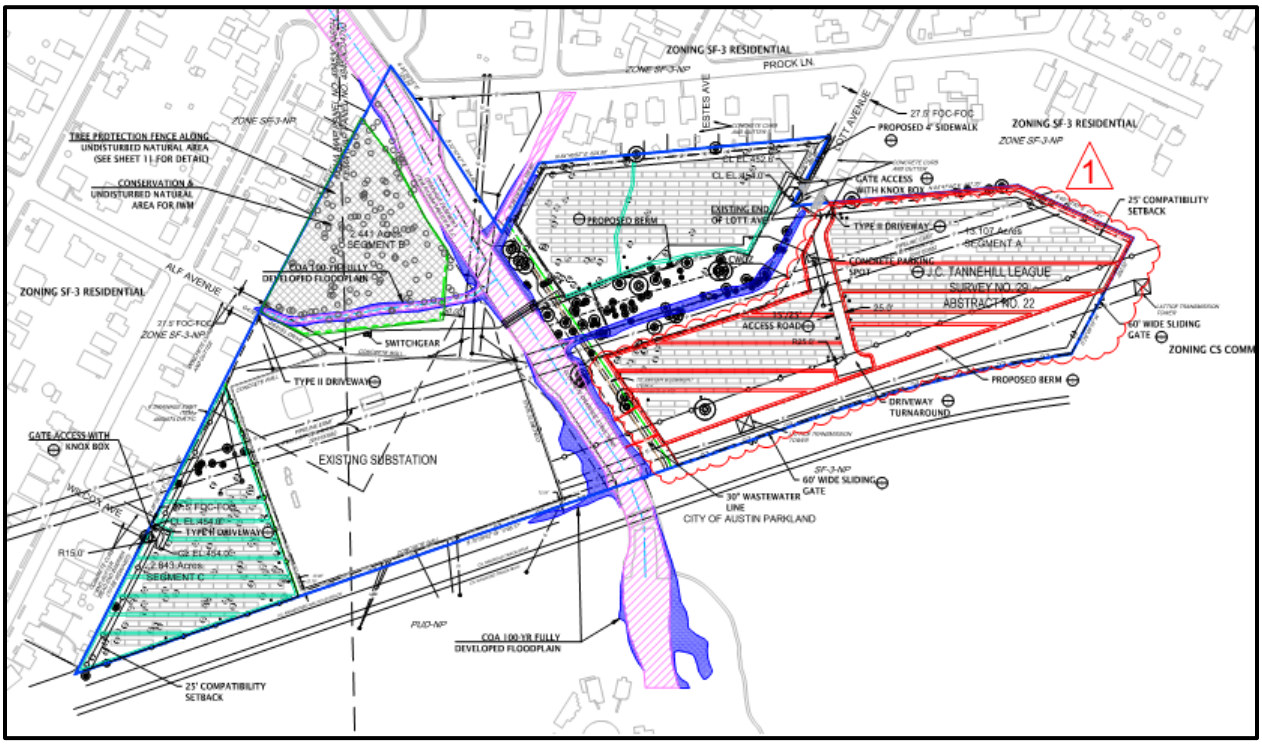
Capital Metro is currently under contract with WATCO (Austin Western Rail Road) to store rail cars at this project location near Jain Lane. Contractually, the tracks are owned by Capital Metro but are

under an operations contract with WATCO. The contract term is from October 1, 2014 through September 30, 2035.

EXISTING SOLAR FARM

Austin Energy, the City of Austin's electric utility, recently constructed a Solar Farm in East Austin adjacent to the proposed La Loma trail location. The Solar Farm construction was completed in March 2018. The proposed La Loma trail alignment along the Tannehill Branch Creek and trail width was coordinated with Austin Energy during this preliminary phase. Austin Energy agreed to leave the space adjacent to the Tannehill Branch Creek for the future La Loma trail. The Solar Farm fencing is about 10-12 FT off from the proposed trail.

Figure 10: Solar Farm Project Site Plan



CHAPTER 3 – PERMITTING REQUIREMENTS

The following are the known permits required at the time of this Preliminary Engineering Report. There may be other permits required if the project scope changes or if any findings are made during the design or construction process.

The project may qualify to be constructed under the General Permit program requirements.

During the preliminary phase, the 90% Preliminary Engineering Report will be submitted to the sponsor and other stakeholders (Capital Metro, Parks and Recreation Department and Watershed Protection Department) for reviews.

For the design phase, General Permit Application must be submitted for review and approval through the City of Austin Development Services Department. It is anticipated that the following permits will be required:

City of Austin Permits:	General Permit, Traffic Control Permits, Temporary Construction Easements, possible Parks and Recreation Department approval for construction staging, possible approval from Watershed Protection Department for working within the drainage channel.
State Requirements:	Texas Commission on Environmental Quality (TCEQ) construction general permit TXR 150000, Stormwater Pollution Prevention Plan (SWPPP) The project area is **not** within the Edwards Aquifer Contributing / Recharge Zone.
Federal Requirements:	Nationwide permit, Clean Water Act
Texas Department of Licensing and Regulation (TDLR):	ADA sidewalk review and compliance.
Floodplain:	Part of the trail is within the floodplain. Depending on the alternative chosen, detailed analysis will be required in the design phase. Alternative 1a would require a variance from City of Austin Code Section 25-8-261, as it is less than 25 feet from the centerline of the waterway.
Tree: trails	Tree removal mitigation or payment into tree fund to accommodate

Balcones Canyon Conservation Plan (BCCP) Clearance:

The project is **not** with in the Balcones Canyon Conservation Plan

Environmental Permit:

No occurrences of federally or state-listed endangered or threatened species or their habitats have been recorded or observed in the proposed project area and no adverse impacts to these species or their habitats are expected.

Among the five trail segments, only Alternative 3 would have moderate impacts to vegetation and wildlife habitat.

No Critical Environmental Features (CEFs) defined by COA Environmental Criteria Manual (ECM) Section 1.10.3 were observed within the construction limits of the preferred alternative segments.

No archeological sites were found in those portions of alternative segments where previous investigations were conducted. However, additional investigations may be needed depending upon the outcome of future coordination with the Texas Historical Commission (THC).

Fort Branch Creek, Tannehill Branch Creek, and Boggy Creek West are identified as Waters of the United States (WOTUS) regulated by the United States Army Corps of Engineers (USACE). Depending on the type and location of construction of the trail crossings required by the Eleanor Street segment, and Alternatives 1A or 1B, impacts of the construction may trigger USACE permitting under Section 404 of the Clean Water Act. If the creek crossings are completely spanned by trail bridges, no impacts to WOTUS are expected and Section 404 permitting would not be required.

Pipeline Encroachment:

As per Kingsbery Pipeline soil sampling report (See extracted pages in **Appendix N**), a gas pipeline is within the project area and will require specific encroachment documents that will need to be submitted for permission to construct on their easement.

CHAPTER 4 -PROPOSED LOTT AVENUE CONNECTION

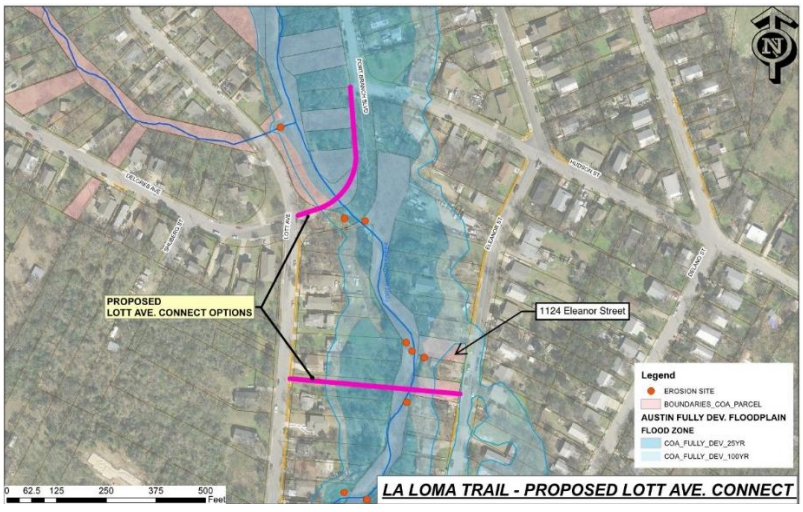
The purpose of the Lott Avenue Connection is to provide accessibility for the community on the east side of the Fort Branch Creek to the west side (See **Figure 9** for location). Currently, the community on the east side of the Fort Branch Creek does not have access to the school or any community places south of the railroad. This Lott Avenue Connection will provide access to the proposed La Loma Trail.

Proposed **Option 1** will be approximately 450 LF of trail connecting Eleanor Street with Lott Avenue to provide access for the community on the east of Fort Branch Creek to the proposed La Loma Trail. This proposed trail segment will utilize the City of Austin property at 1124 Eleanor Street, cross the Fort Branch Creek with an approximately 60 FT span pedestrian bridge, and connect with Lott Avenue at 1125 Lott Avenue (See **Appendix L** for preliminary bridge structure detail of other project)

Proposed **Option 2** will be approximately 400 LF of trail connecting Lott Avenue with Fort Branch Blvd at Hudson Street along the City of Austin parcel. This option was addressed in the East MLK Combined Neighborhood Plan of November 2002, Action 102. Option 2 route will be within dedicated street ROW of Fort Branch Blvd extension to connect Lott Avenue. Considering there will be a possible street connection in the future, option 2 will be eliminated from analysis in this PER.

Proposed Lott Avenue Connect Option 1 will require Right-of-Way acquisition at 1125 Lott Avenue. There are storm drain pipes along the project's north side alignment from Lott Avenue to the Fort Branch Creek. Per AULCC coordination, there are no other utilities with in this segment of trail connection. The existing terrain is generally flat, with the Fort Branch Creek located between those two parcels. Watershed Protection Department is the COA steward for the property at 1124 Eleanor Street. The floodplain is wide along this area. Floodplain modeling and coordination with Watershed Protection Department will be required to ensure no adverse impacts to the floodplain and to preserve access for maintenance activites. Erosive capability of Fort Branch Creek may require detailed erosion analysis in the design phase.

Figure 11: Lott Avenue connect



CHAPTER 5 - EVALUATION CRITERIA AND ANALYSIS

CONNECTIVITY AND EASE OF ACCESS

Connectivity is defined as the ease of reaching destinations. Highly accessible routes provide easy access to many other activities or destinations quickly with inaccessible routes reaching fewer places in the same amount of time. Connectivity was assigned a score between 1 and 5. A score of 5 is the least accessible, and a score of 1 is the most accessible sections with multiple connectivity destinations. Ease of access during a storm event means that the trail may or may not be usable during storm events, resulting in the value of 5 (not accessible) or 1 (accessible).

Alignment 1a/1b has the historic route currently used by the students, which connects the Prock Lane / Sara Drive where most of the local streets in the east side of Tannehill Branch is connected. There is a pedestrian bridge crossing the Tannehill Branch Creek near Berger Street, which can bring people from the west side of the creek to the proposed Alternative 1a/1b trail. Alternative 1a/1b connects to the existing SWCT, which is providing connection between trails. Alternative 1a/1b is a convenient tie-in with the Capital Metro Bus route at Sara Drive and Prock Lane for the people to use the bus. There are multiple origins possible for this alternative, such as connection with Lott Avenue, Richardine Avenue, and Alf Avenue.

Alignment 2 is connecting the community on the north side of the railroad tracks to the south side with the existing Jain Lane at Brookswood Avenue. This alignment does not tie-in directly with SWCT. There is no existing sidewalk to connect the pedestrian bridge crossing the Tannehill Branch Creek at Berger St. This alternative needs to connect to the existing pedestrian bridge in order to bring the east side neighborhood to the trail crossing at the railroad.

Alignment 3 is connecting the east end of Prock Lane to the existing SWCT, which would provide an underpass for railroad track at Fort Branch Creek.

Table 2: Connectivity Scoring

Alternatives	*Connect with other trails*	*Connect with main roadways*	*Ease access to School*	*Ease of access during storm event*	*Total*
ALT1a	1	1	1	5	8
ALT1b-OPT1	1	1	3	1	6
ALT1b-OPT2	1	1	1	5	8
ALT1b-OPT3	1	1	1	1	4
ALT2-OPT1	3	2	3	5	13
ALT2-OPT2	3	2	3	1	9
ALT3	1	5	5	5	16

PERMITTING COMPLEXITY

Permitting complexity is based on floodplain and drainage impacts and watershed coordination, permission from railroad authorities, and PARD regulations and coordination.

Floodplain and drainage impacts indicate whether or not the trail is located in the floodplain and the effect of the trail on water surface elevations. Where the trail is located in the floodplain it is also important to minimize the cut/fill so that the impacts to water surface elevations will be minimal. It will also indicate if there are outfalls or tributaries that would cross the trail during storm events. There is a range of floodplains identified by the Watershed Protection Department from a 2-year storm event to a 100-year storm event. Trail segments located in the 100-year floodplain would have a value of 5 assigned to them. Trail located outside the 100-year floodplain would have a value of 1 assigned to them.

Railroad permission is based on the degree to which the railroad operations are affected during before and after construction. Value of 1 indicates the trail crossing is outside the tracks and not affecting the operation. The trail crossing that most negatively affects railroad operation will have a value of 5.

PARD coordination is depending on the trail inside the green belt and permission required to construct within the green belt. If the majority of the trail is within the green belt, it will have a value of 5. Trail located outside of the green belt will have a value of 1.

Table 3: Permitting Complexity Scoring

Alternatives	*Floodplain and Drainage*	*Railroad permission*	*PARD coordination*	*Total*
ALT1a	5	1	5	11
ALT1b-OPT1	1	1	5	7
ALT1b-OPT2	3	3	5	11
ALT1b-OPT3	1	1	5	7
ALT2-OPT1	5	3	1	9
ALT2-OPT2	3	3	1	7
ALT3	5	1	5	11

ENVIRONMENTAL IMPACTS

The PER process evaluates all the environmental constraints of the corridor including wildlife habitat, surrounding land uses, cultural assessment, critical environmental features, endangered species, as well as several other elements. An environmental site assessment report prepared by APTIM Environmental & Infrastructure, Inc. is attached in **Appendix E**.

Based on Evaluation of Environmental Constraints and Project Alternatives Report (Prepared by Hicks & Company - **Appendix E**) the following scoring is applied to the alternatives. Score 1- will be the lowest (negligible impacts) and 5 is the highest (significant impacts). Alternative 3 would have moderate impacts to the vegetation and wildlife habitat. Alternative 2 is comparably small segment, which shows negligible impacts compared with other alternatives.

Table 4: Environmental Impacts Scoring

Alternatives	Ranking
ALT1a	4
ALT1b	4
ALT2	3
ALT3	5

EASEMENTS / RIGHT-OF-WAY

Easement / ROW indicates an easement's status, suggesting the trail's constructability and any additional right-of-way that would be needed to accommodate the trail. The majority of the trail segments are fall within City of Austin property. The number "5" is assigned to segments where there is not an existing easement to allow construction of the trail. The number "1" is assigned to segments where an existing easement or a City of Austin right-of-way exists that would allow construction of the trail.

Table 5: Easement / Right-of-way scoring

Alternatives	Total Score
ALT1a	3
ALT1b-OPT1	2
ALT1b-OPT2	3
ALT1b-OPT3	2
ALT2-OPT1	5
ALT2-OPT2	5
ALT3	2

TREE IMPACT

Tree impact was determined using an existing tree survey as well as a supplemental tree survey. The score "5" is assigned to segments where the largest impact to trees would occur and would require mitigation. The score "1" is assigned to segments where no impacts to trees would occur. See **Chapter 6** of this report for Tree Impacts and **Appendix A** for Field Reports, which show the existing conditions and dense tree canopy within the project vicinity.

Table 6: Tree Impact Scoring

Alternatives	Area of dense tree	Total Score
ALT1a	25,000 SF	4
ALT1b-OPT1	25,000 SF	4
ALT1b-OPT2	25,000 SF	4
ALT1b-OPT3	25,000 SF	4
ALT2-OPT1	600 SF	1
ALT2-OPT2	600 SF	1
ALT3	22,000 SF	5

COST

The quantities for the recommended proposed Alternatives 1-3 have been estimated using GIS / LIDAR information. The estimated construction costs are preliminary and are based on the preliminary design stage. The level of accuracy will increase as the design moves forward and topographic surveys become available. The opinion of probable construction cost estimate for the proposed Alternatives 1-3 are listed in the table below. Details of the estimate have been included in **Appendix L** of this report. The trail construction cost is analyzed and is ranked from 1 – 6 (lowest to highest).

Table 7: Cost Scoring

Alternatives	*Trail Construction Cost ($)*	*Ranking*
ALT1a	$ 2,072,000	4
ALT1b-OPT1	$ 2,640,000	5
ALT1b-OPT2	$ 2,928,000	6
ALT1b-OPT3	$ 1,784,000	3
ALT2-OPT1	Not estimated due to design limitation	
ALT2-OPT2	$ 1,430,300	2
ALT3	$ 1,123,000	1

CHAPTER 6 - ENGINEERING ANALYSIS

RAILROAD CROSSING

As per Union Pacific Railroad's "Guidelines for Grade Separation Projects," the Railroad discourages the construction of new underpass structures and encourages the use of existing structures to cross the railroad tracks. New underpass structure shall be designed per Section 6 of the Guidelines and vertical clearance shall not be less than 8 FT. New overhead structures shall be designed per Section 5 of the Guideline and the minimum vertical clearance shall be 23'-4" measured from the top of the highest rail to the lowest obstruction under the structure.

Proposed Alignment 1a will utilize the existing railroad bridge opening at Tannehill Branch Creek and will underpass the tracks. There is about a 10 FT wide opening between the columns underneath the bridge (See ***Figure 12: Railroad Bridge at Tannehill Branch Creek*****)**. Alignment 1a would require a variance from Section 25-8-261 of the City of Austin Land Development Code, as it is less than 25 feet from the centerline of the waterway. This option will affects the conveyance of the channel. Per the community, the existing railroad bridge at Tannehill Branch Creek caught fire many years ago. The Bridge, which is an old wood structure that appears to be deteriorating, may require a condition assessment.

Figure 12: Railroad Bridge at Tannehill Branch Creek

Proposed Alignment 1b – Option 1 will be a new overhead bridge structure crossing the tracks near the Tannehill Branch Creek. As per the Union Pacific Railroad's Guidelines the vertical clearance should be 23'-4". The proposed overhead structure will be a pedestrian bridge structure with piers compliance to maximum ADA slope of 5%. There are no piers / columns within the 15 FT clearance

from the centerline of each track. To provide vertical clearance of 23'-4" as per railroad guidelines, the existing Austin Energy overhead electric transmission lines will be in conflict.

Proposed Alignment 1b – Option 2 will be an underpass adjacent to the Tannehill Branch Creek. Proposed underpass will be hand tunneling under the railroad tracks. Contech Engineered Solutions, LLC was consulted for the tunneling options during the preliminary phase, and they provided a draft structural calculation for 2 – Flange Liner Plate (See **Appendix L**). The proposed Steel Tunnel Liner Plate will be about 124" diameter with 10 gauge thickness and hot dipped galvanized and was checked for cover of 10', 8' and 6'. The tunnel should be designed with elevated side walls to stop drainage water getting into the tunnel during the rain event. All the nuisance water that gets in the tunnel will be pumped out.

Proposed Alignment 1b – Option 3 will be an at-grade crossing near Tannehill Branch Creek.

Proposed **Alignment 2a – Option 1** will be a new underpass structure to cross the railroad tracks at Jain lane. This option will not be feasible due to limited ROW and cannot achieve the 5% maximum trail grade in order to keep 8 FT cover as per the Railroad's Guidelines.

At-Grade option is analyzed for the same alignment and will be **Alignment 2a – Option 2**. Propose trail will utilize the empty lot at 1100 Brookswood Ave and will cross the tracks at-grade.

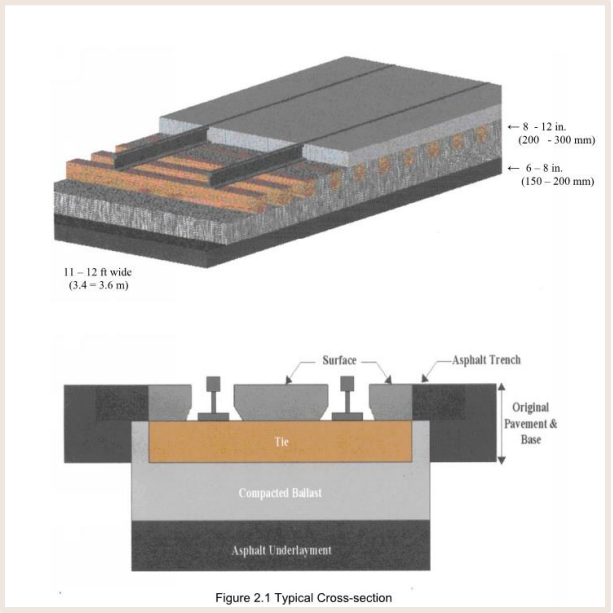
Proposed **Alignment 3** will be utilizing the existing railroad bridge at Fort Branch Creek, which has a wider opening underneath the railroad tracks and will allow the proposed trail to cross underneath the existing bridge. Fort Branch is very erosive underneath the bridge. Adjacent terrain is very steep near the track underpass. To achieve the ADA slope the proposed trail needs to meander due to high grade change. Floodplain modeling is needed if this alternative is chosen.

At-Grade Crossing:

There is a conflict for possible at-grade crossing due to the parked railroad cars near Jain Lane. As per Capital Metro, railroad cars occupy the entire double track segment in between Airport Blvd to the Fort Branch Creek Bridge. Under Federal Railroad Administration (FRA) regulations, should railroad cars be uncoupled at a grade crossing, a 250-FT buffer on either side is required.

The options for shifting the railcar storage towards Airport Blvd. by extending track towards Airport Blvd. was coordinated with Capital Metro during this preliminary phase. Capital Metro agreed to this possible at-grade crossing near Tannehil Branch Creek with a 250-FT buffer on either side of the track. This will require building additional track of 512 FT. (See **Appendix B** – At-Grade Crossing Possible Option exhibit.) Consequently, adding new tracks will incur additional cost.

Figure 13: Railroad Bridge at Tannehill Branch Creek



TANNEHILL BRANCH CREEK CROSSINGS

Proposed Alternative 1 crosses Tannehill Branch tributaries at two locations near Prock Lane. The first channel is located closer to Prock Lane and has existing storm drain pipes where the trail can go above. (**See Figure 12** below). The proposed trail will cross the second channel crossing from Prock Lane with a short span bridge of 15-20 LF. The 100 year floodplain at this second channel crossing is about 13 feet wide as per City of Austin fully developed floodplain. Detailed analysis will be required during the design phase for this crossing.

Figure 14: Tannehill Branch Creek Crossings

1st crossing from Prock Lane: Propsoed trial will go behind the concrete channel/ above culvert

2nd crossing from Prock Lane: Proposed trail crossing will be a short span brdge of 15-20 ft length.

Proposed Alternative 1a will cross underneath the existing railroad bridge at Tannehill Branch Creek with a possible crossing at the existing creek bed level. This option will not impact the floodplain elevation, since the trail goes at grade with no change on the creek bed elevation. To achieve this the east bank will be dredged and graded to bring the trail down to creek elevation about 100 FT from the tracks on both sides.

CRITICAL WATER QUALITY ZONE (CWQZ)

In all watersheds, multi-use trails—including hard-surfaced trails—may cross a Critical Water Quality Zone of any waterway (*ECM – 1.5.3*). A hard-surfaced trail is allowed within the CWQZ if it is located outside of the erosion hazard zone, is a maximum of 12 FT wide and is located not less than 25 FT from the centerline of the waterway in an urban watershed.

As per Section 25-8-261 (B)(3)(d) in the Land Development Code, proposed trail alignment cannot be located less than 25 FT from the centerline of the creek if within an urban watershed. The proposed La Loma Trail Alternatives are located within an urban watershed and the proposed alignments are located over 25 FT from the creek centerline except Alternative 1a – where the underpass utilizing the existing railroad bridge will be closer to the creek centerline. An administrative variance would be requested for Alternative 1a, where the trail is within 25 FT from the creek centerline.

CWQZ AREA: (SF)			
ALT1	*ALT2*	*ALT3*	*LOTT*
50,500	*7,700*	*15,600*	*16,500*

EROSION HAZARD ZONE (EHZ)

The City of Austin defines the Erosion Hazard Zone (EHZ) as "an area where stream channel erosion is likely to result in damage to or loss of property, buildings, infrastructure, utilities or other valued resources". Since this project is partially located adjacent to a waterway, an erosion hazard analysis is required.

Construction within the EHZ will require armoring to prevent erosion. The erosion hazard review zone is established for Boggy Creek, Tannehill Branch Creek and Fort Branch Creek adjacent to the waterways about 100 FT from the creek centerline as per the City of Austin GIS data. There are no erosion sites within the project area, but there are a few active erosion sites located within the project vicinity (See **Figure 13**).

Figure 15: Erosion Sites

DRAINAGE AND FLOODPLAIN

There are three creeks within the project area; Boggy Creek, Tannehill Branch Creek and Fort Branch Creek. Alternative 1a/1b will follow parallel to Tannehill Branch Creek north of the railroad tracks along the existing beaten path south of the railroad tracks.

There are drainage outfalls and culverts near Sara Drive where Alternative 1a/1b follows.

There are storm drain systems on the west side of Alternative 2 where Boggy Creek crosses the railroad tracks. For proposed Alternative 1b – Option 2, the underpass structure may need to pass the drainage flow into the tunnel to the Tannehill Branch Creek in order to avoid flooding in the trail area.

There are no drainage structures associated with Alternative 3 Alignment.

Lott Avenue connection – Option 1 & 2 crosses Fort Branch Creek.

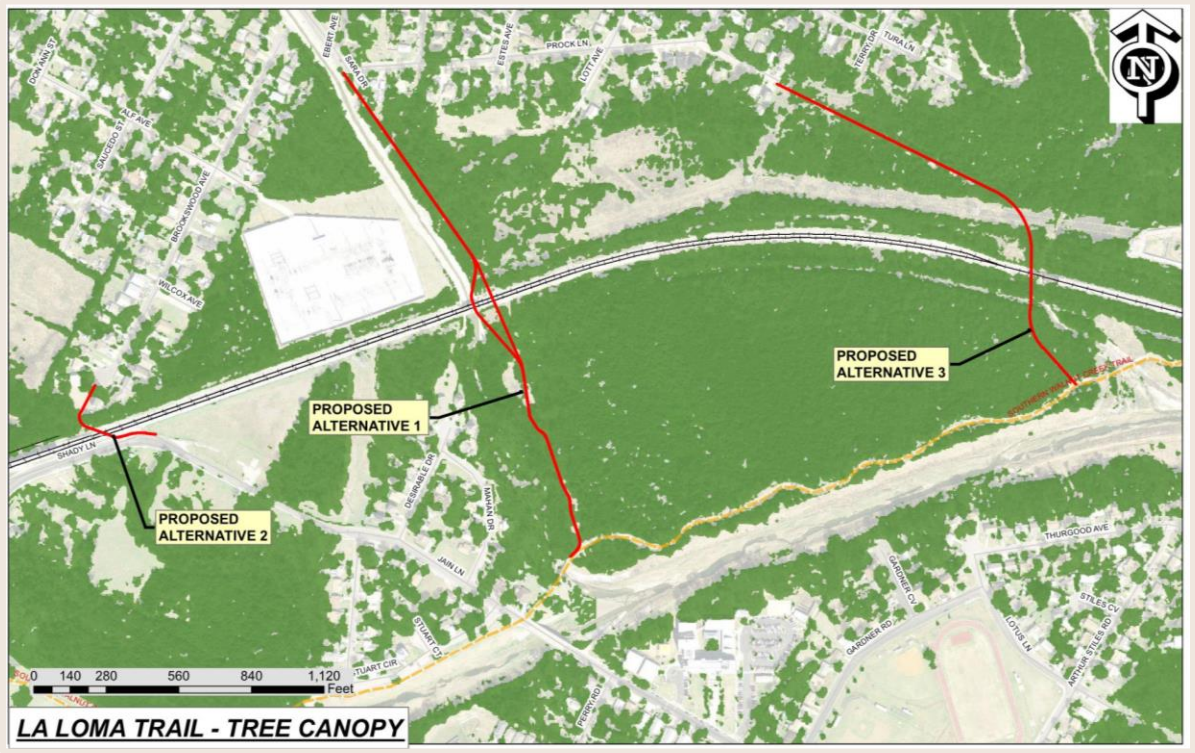
TREE IMPACTS

There was no tree survey conducted as part of the Preliminary Engineering Report. Once the alignment is chosen, a tree survey will be performed to identify the impacts to the existing trees. The majority of Alternative 1a/1b are located along an existing, cleared, beaten path. Alternative 1 will follow the existing beaten path, which is about 5 FT – 7FT wide cleared. An additional 5 FT -10 FT needs to be cleared to provide 12 FT wide proposed trail.

Alternative 2 does not have much impact to the existing trees. There are a couple of trees near the railroad tracks adjacent to Boggy Creek. The vacant lot at Brookswood Avenue is relatively clear, and there are no trees.

Alternative 3 near Prock Lane will follow along the highly vegetative area where a 15 FT wide trail ROW will need to be cleared approximately the entire alignment length.

Figure 16: Tree Canopy



UTILITY CONFLICTS

The preliminary plan was submitted to Austin Utility Location Coordination Committee (AULCC) to receive existing utility information within the project location and impacts from any upcoming projects. The submittal to AULCC allows the utility providers an opportunity to determine if any necessary upgrades or improvements to their facility are needed or not in the project limit. The AULCC meeting was held on May 11, 2017 with all the utility providers to receive and confirm all the existing utility conflicts. The summary of minutes and responses are attached in **Appendix C**.

In general there are no conflicts with any of the utilities. However there is a storm drain system along the east bank of the Tannehill Branch Creek for Alternative 1. Overhead electric lines are going parallel to the railroad track. Proposed Alternative 1 with overpass may need to consider the existing overhead utilities.

As per the Kingsbery Solar Project, there is a gas pipeline across the parcel north of railroad tracks.

GEOTECHNICAL ENGINEERING ANALYSIS

Geotechnical investigation was not initiated during the PER stage. Once the alignment is finalized, a geotechnical consultant will be assigned and geotechnical report including investigation and analysis will be prepared during the design phase. The geotechnical investigation will be performed for the preferred alignment chosen in this PER. Travis County NRCS soil report is attached in **Appendix D**.

LIGHTING OPTIONS

As the Urban Trail network in Austin expands and aims to serve transportation needs as well as recreational purposes, lighting should be considered along certain trail segments. Installing lighting along the urban trails will allow users to access them safely and conveniently by enhancing night time visibility, orientation, and a sense of security.

The proposed La Loma Trail alternatives are set back from the roadway and mostly within the parkland adjacent to the creeks. The majority of the area is highly wooded. Trail lighting will encourage night time use and give trail users a sense of security while passing through after dark. The trail neighborhood has an electrical connection with Austin Energy. The lighting system will be fed from points where the trail crosses the Austin Energy electrical distribution system or from the Kingsbery Solar Panels (Current Project by Austin Energy) near Sara Drive.

Two types of lighting fixtures were investigated, a bollard type fixture that illuminates the trail only and a pole mounted fixture that illuminates from an elevation that covers the trail and trail users. Proposed lighting fixtures will be LED type, which produce more light with less power. LEDs do have greater initial cost than other types of bulbs, but they are more efficient and durable in the long run.

Bollard type fixtures: This requires more quantities than the pole mounted option, since the spacing between bollards will be about 30 – 40 FT. This concept minimizes the impacts of the lighting on the residents who live adjacent to the trail.

Pole Mounted type fixtures: Pole mounted fixtures provide expanded lighting compared to bollard style fixtures. Lights will be mounted on a roughly 14 FT tall pole with an average spacing of 100 LF.

Since La Loma trail is not close to the residents and the majority of the trail is in the wooded area, pole mounted lighting is recommended. Construction cost estimate for pole mounted type lighting associated with each alternatives are under **Appendix K**.

CHAPTER 7 - PUBLIC INPUT

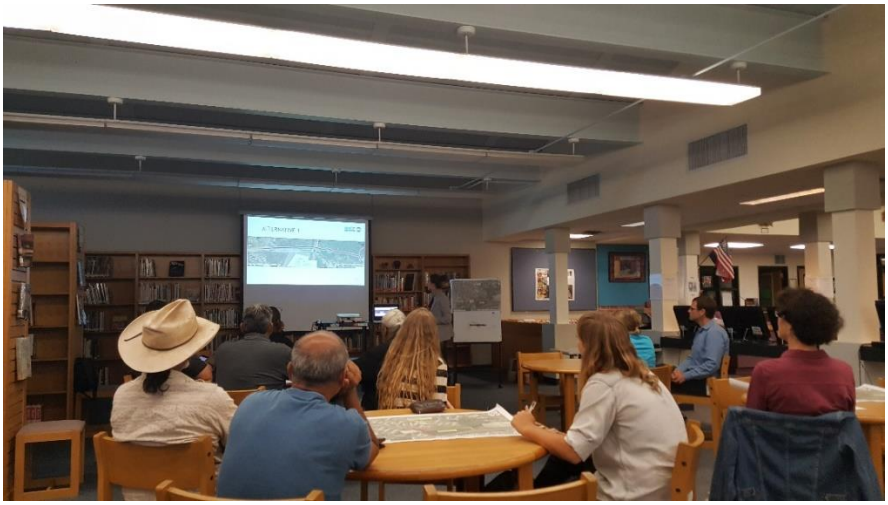
City of Austin engaged with neighborhood representatives in early September 2017 and collected information regarding the La Loma trail alternatives and suggestions from the public (See Appendix A for the field report and meeting minutes dated 9/5/2017). City of Austin walked the proposed trail Alternatives 1 and 2 with community stakeholders and representatives from two city council offices. Pete Rivera Sr. from Springdale – Airport Neighborhood Association showed the possible route options and indicated the preferred options as Alternative 1 that the community has used over 50 years.

The first public meeting held at Eastside Memorial High School on Oct 17, 2017, informed the public about the project and La Loma trail alternatives including Lott Avenue connect options.

The second public meeting was held at Parque Zaragoza Recreation Center on September 24, 2019. The public was informed about the recommendations, and they were able to provide feedback on their preferred alternative. Alternative 1 is the preferred option chosen by the majority of the public through a survey. For the full list of public comments see **Appendix O**.

Figure 17: Pictures

On site walk with the community stakeholders and council offices representatives



Public Meeting on Oct 17th 2017

CHAPTER 8 - PROBABLE CONSTRUCTION COST AND SCHEDULE

The estimated construction costs are preliminary and are based on a preliminary design stage. The level of accuracy will increase as the design moves forward and topographic surveys become available. Proposed railroad crossing construction cost incorporated in the estimate is assuming the track is not active and the construction will happen during no rail service time. Lighting, landscape features and other amenities are not included in this estimate at this time. Details of the estimate have been included in **Appendix K** of this report.

Table 8: Probable Construction Cost of alternatives

		ALT1a	ALT1b - Opt 1	ALT1b - Opt 2	ALT1b - Opt 3	ALT2 - Opt 2	ALT3
		Underpass Ex.Bridge	Overpass (Bridge)	Underpass (Tunnel)	At-Grade near Tannehill	At-Grade at Jain Lane	Underpass Ex.Bridge
1	**Construction Cost - La Loma Main Trail**	**$2,072,000**	**$2,640,000**	**$2,928,000**	**$1,784,000**	**$1,430,300**	**$1,123,000**
2	ADD - Railroad Track Construction Cost	N/A	N/A	N/A	$1,228,800	$1,228,800	N/A
	Total Construction Cost	**$2,072,000**	**$2,640,000**	**$2,928,000**	**$3,012,800**	**$2,659,100**	**$1,123,000**
3	ADD - Segment 1 (North of Substation) Construction Cost	$295,000	$295,000	$295,000	$295,000	N/A	N/A
	Total Construction Cost	**$2,367,000**	**$2,935,000**	**$3,223,000**	**$3,307,800**	**$2,659,100**	**$1,123,000**
4	ADD - Lott Ave Connect Construction Cost	$499,000	$499,000	$499,000	$499,000	$499,000	$499,000
	Total Construction Cost	**$2,866,000**	**$3,434,000**	**$3,722,000**	**$3,806,800**	**$3,158,100**	**$1,622,000**

PROJECT SCHEDULE:

This is based on preliminary design stage. Actual start of design phase will depend on the funding available.

Table 9: Project Schedule

Project Phase	*Duration (Months)*
Design and Permitting	*24*
Contract Procurement	*4*
Construction Phase	*12*

CHAPTER 9 - RECOMMENDATIONS

The recommended trail alternate creates a shared-use urban trail connecting neighborhoods, parks, and businesses. The trail will serve as an amenity for the surrounding community so that nature can be enjoyed. After coordination with all of the project's stakeholders and per alternative analysis, the recommended trail alternative will be Alternative 1b-Option 3 which is an at-grade crossing east of Tannehill Branch Creek.

Alternative 1 will provide a safer route for joggers, walkers, cyclist, and, especially, students alike. The main purpose of this project is to provide access for the students to the schools located north and south of the railroad track near Jain Lane, which connects to the Southern Walnut Creek Trail. Alternative 1 provides more connectivity with local roads, parks, schools, bus routes, and trails. The existing beaten path shows the degree to which Alternative 1 is already being used by the students and the community. The majority of Alternative 1 trail segment is within City of Austin property and will require an easement to provide the trail.

Alternative 1a – Underpass at existing Tannehill Bridge is not feasible since it will affect the conveyance of the channel and is also not safe for pedestrians to travel during rain events.

Alternative 1b - Option 1 – Overpass is not feasible due to high cost for the bridge and possible utility relocations in order to provide the vertical clearance of 23'-4" to the railroad.

Alternative 1b - Option 2 – Underpass is not feasible since it is tunneling below the railroad tracks with the clearance of 8 FT that will require over 200 FT of tunneling length, creating a safety and comfort-level problem for pedestrians. Underpass option requires addressing the drainage flow into the tunnel, which will be complicated. This require more permitting and high maintenance cost.

Alternative 1b - Option 3 – At-grade crossing is the recommended option after coordinating with Capital Metro and the public. Capital Metro agrees with the recommendation of an at-grade crossing with the condition of adding new tracks to provide railcar parking space as per the current contract that Capital Metro maintains with WATCO. This will require a 250 FT buffer on either side of the grade crossing as per FRA regulations.

Alternative 2 is a short trail compared to the other alternatives, which have less impact to the environment, but require additional ROW/Easement with the property at Brookswood Drive and Capital Metro Railroad. Alternative 2 has less connectivity with local roads east of the Tannehill Branch Creek. Additionally, it is not directly connected with the Southern Walnut Creek Trail. Capital Metro prefers Alternative 2 at-grade crossing than the at-grade crossing near Tannehill Branch Creek since Alternative 2 has the easier access for hy-rail vehicles through Jain Lane.

Alternative 2 - Option 1 is not feasible to underpass the tracks with required cover for railroad with the ADA accessible grade change in a short trail segment.

Alternative 2 - Option 2 is the preferred option for at-grade crossing by Capital Metro.

Alternative 3 has less connectivity and is further away from the main pathway used by the students to the school. Alternative 3 requires an additional half mile walk along the Southern Walnut Creek Trail to get to Jain Lane to continue on to the school on south side. Of all the trail segments, Alternative

3 would have moderate impacts to vegetation and wildlife habitats. The only connected local road on the northern side of the railroad track will be Prock Lane, which suggests that Alternative 3 is not a preferred option.

Alternative 3 – is not feasible to underpass the railroad bridge since the channel is very erosive, adjacent terrain is very steep and the alignment is way away from the main pathway where students use often. Alternative 3 has the lowest unit construction cost but high in impacts as per the alternative analysis matrix (Table 1).

The proposed Lott Avenue Connection options are located within proximity of each other. Probable construction costs differ about $20,000 more for Option 1. Proposed Option 2 was mentioned in the East MLK Neighborhood Plan and is also located within the possible dedicated street ROW. Option 2 is closer to the Fort Branch Blvd creek crossing on the north side at Delano Street. Proposed Option 1 will be the preferred alternative and will provide access located on south side of Lott Ave, ultimately connecting with the proposed La Loma Trail. Fort Branch Creek is highly erosive and has a wider floodplain in this area, thus requiring more analysis during design stage.

COST ESTIMATE OF THE PREFERRED ALTERNATIVE

DESCRIPTION	COST
Construction of La Loma Trail with lighting	**1,784,000**
Architecture & Engineering	899,000
Surveying	58,000
Miscellaneous	213,000
Art In Public Place	56,000
Contingency (10%)	293,000
Sub-Total	**3,300,000**
Construction of Railroad track	**1,229,000**
Architecture & Engineering	430,000
Miscellaneous	161,000
Contingency (10%)	181,000
Sub-Total	**2,000,000**
Grand Total Project Cost	**5,300,000**