

APPENDIX

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SPRING BRANCH TRAIL STUDY

APPENDIX A PUBLIC MEETING AND PUBLIC COMMENT SUMMARIES



Meeting Summary Public Meeting #1

The Spring Branch Management District held a public meeting on Monday, March 4, 2019 from 6:00 PM to 8:00 PM at the Karbach Brewery. The public meeting was advertised as “Seven Projects to Follow in 2019” and included information about seven projects taking place within the Spring Branch Management District this year. The Spring Branch Trail Study is one of the seven projects. The meeting was well attended with over fifty people signing the sign-in sheet upon arrival.

Meeting participants viewed boards that presented the seven projects as they walked into the event space. Once inside the meeting room, the TEI team had two maps set up and the Houston Parks Board had two maps set up to gather input from meeting participants on the regional trail study and Phase 1 design. Around 6:30 PM, Pat Maddox, Chairwoman of the Board for SBMD gave an introduction about the projects. Michael Robinson with SWA gave a recap of how we got to this point today and what the seven projects will entail. Chelsea Young with TEI then gave an overview of the Spring Branch Trail Study and how to provide input on desired walking/biking destinations and encouraged participants to stop by the maps and try the online mapping application. Lisa Graiff with Houston Parks Board gave an overview of the Phase 1 trail project and the timing of implementation.

After the presentation, meeting participants were encouraged to gather around one of the maps that were laid out for participants to identify destinations, barriers, and opportunities mostly focused on the regional CenterPoint trail corridor. The information gathered will be compiled with the consultant team’s notes, the steering committee maps, and from the interactive online map resource, “map.social”. The data collected will be used to identify destinations where people want to walk/bike, identify barriers to connectivity, and will help identify key corridors for walking/biking along the CenterPoint easement and north/south to destinations throughout Spring Branch.

Attachments:

- Sign-in Sheet
- Map exercise instruction sheet





Monday
March 4, 2019
 @6 - 8PM
Karbach Brewery
 2032 Karbach St. - 77092

**Do you live, work, or go to school
 in the Spring Branch area?**

Join us to learn about the exciting new
 projects happening in 2019 and participate
 in the conversation about making our
 community even greater.

TALKING POINTS
"engaging conversation"
 AN OPEN HOUSE PUBLIC MEETING

We're talking projects —
 public art, mobility, trails,
 greenspaces & more!

**Join us & get in on
 the conversation!**

visualize the conversation at:
SBMD.org/7ProjectsToFollow

PUBLIC MEETING SIGN IN SHEET
 3/4/2019

NAME	ORGANIZATION	E-MAIL ADDRESS	PHONE #
DAVE DRAHAM	SB SUPER NEIGHBORHOOD	ABETH DA...	
Cliff McMann	H-GAC	cliff.m...	
REGER LIN		LINSRE	
Liz Miranda	COH	elizem	
MARY BETH BOURGEOIS		bourgeli	
Maggie Kirk	Allegiance Park	maggie	
Robin Kirk	Resident	robin	
Henny Marfield	Self	txi	
Chip Place	Houston Parks & Rec	chipel	
Phil Bourgeois	Resident		
Carmine Horsley	Spring Branch Civic Assoc		
Annabelle Flanagan	Resident		
Shannon Seal	Resident	sea	
Louis Montanari	Resident	Lou	
Lizette Escoto	Resident	Liz	
Keri Josephson	"	Keri	
BRENDON BAILEY	"	brend	
German Quinlan	"	fotos	
Kate Gilbert	H-E-B	SLOO	
Dan Martel	Texas CRES	dan@	
Eric Albora			
FAISAL POONAWALA	Spring Branch Medical Supply	info@	
RAMON NUNEZ	Business Owner / Home Owner	RAMON	



Meeting Summary Public Meeting #2

The Spring Branch Management District held a family-friendly open-house style public meeting for the Spring Branch Trail Study on Tuesday, September 24, 2019 from 6:30 PM to 8:30 PM at The Branch, a local restaurant located in Spring Branch at 7710 Long Point Road, Houston, Texas 77092. The meeting was well attended with 79 people who signed the sign-in sheet. Note: the list does not reflect participants that chose not to sign in, nor the SBMD team and consultant team participants of at least 12 team members.

Meeting attendees began arriving as early as 6:00 PM and were encouraged to view the large display boards illustrating the seven trail segments and other key features and study recommendations. While viewing the display boards, participants could speak with team members to discuss the project, ask questions, and also provide comments via sticky notes to place on the boards. At 7:00 PM, Josh Hawes, Deputy Director of the Spring Branch Management District, introduced the project and team including exciting news and momentum towards Phase 1 of trail implementation being led by the District and Houston Parks Board. Chelsea Young with TEI then begin a presentation about the Spring Branch Trail Study including some background, a recap of previous public engagement, an overview of the seven segments supporting an nearly 11-mile regional trail corridor, implementation considerations, and next steps for a draft report. Michael Robinson with SWA presented trailhead and landscaping concepts as well as preliminary design for a signature bridge to connect the proposed trail with the White Oak Bayou trail.

After the presentation, meeting participants were encouraged to view the boards, ask the team questions, and provide comments. The overall mood from the meeting participants was positive, supportive, and excited about the trail potential. There was a very small number of participants who brought forth concerns about flooding risks and safety/security risks with the first phase of trail. A list of comments will be provided in the public engagement chapter of the final report.

Attachments or links:

- Sign-in Sheet
- English version flier advertising event
- Spanish version flier advertising event
- Presentation
- 10 Boards from the event



SPRING BRANCH MANAGEMENT DISTRICT PUBLIC ENGAGEMENT MEETING 9/24/2019

NAME	ORGANIZATION	E-MAIL ADDRESS	PHONE #
Sheryl Ross		Sheryl.Ross@sbmd.com	833 * 03
Amanda Brown		Ambrun@sbmd.com	749
Dori + Eric Alborna		Dori@sbmd.com	8
Berry Hunt		Berry@sbmd.com	4
Alexandria Guisbaver		alexg@sbmd.com	69
Rachael Hadrzega		rhad@sbmd.com	22
Neil Olsed	Emmons Heights	Neil@sbmd.com	220
Patty Egan		Peg@sbmd.com	
Beulah Jacoby			
NINA HAMMACK			
Kelly Kretschmar		kk@sbmd.com	
Bill Rogers		zip@sbmd.com	
Annabelle Planagan			
Bowen Roberts		BRob@sbmd.com	
DANNY SALGUEIRO		SALG@sbmd.com	
JEFF HAMILLY	SBWMS		
CUD DILLON	SISCA		
JACKIE ABEAT	AARP	JAB@sbmd.com	
Ann Martin		ann@sbmd.com	
Deniss Valero		Valero@sbmd.com	
Douglas Got		Doug@sbmd.com	
Teri Garrett		teri@sbmd.com	76

SPRING BRANCH MANAGEMENT DISTRICT
PUBLIC ENGAGEMENT MEETING

9/24/2019

NAME	ORGANIZATION	E-MAIL ADDRESS	PHONE #
DAVID LUEHMAN	SUPERNEIGH #84		
Verny Bernis			
Bill Young			882
Greg Ward			58
Clint McManus			7567
Irma Conde			
Pedro Conde			
PAYTON ARENS	KEMLEY-HORN		
MAY WEN			
Mercedes Vargas			623
Daisy Valero			25
Roni Abner			
Denek Carmona			
Lisa Martinson			
Clark Martinson			
MARSHALL CAMPBELL			907
Lauren Grove			550
Dionne Kabin			
Justin Sandt	Langwood #		1172
Melba Coen			
Al Rethis			708
Erik Freiter	2107 Edgemoor Dr		109

SPRING BRANCH MANAGEMENT DISTRICT
PUBLIC ENGAGEMENT MEETING

9/24/2019

NAME	ORGANIZATION	E-MAIL ADDRESS	PHONE #
Lisa Ritter			
MATTHEW BRYANT			
VICTORIA PARISI			
MARGARET CARNEST			
Poissika Smith			
Chris Smith			
Bobby Martin	Herel		
Bryan Young	ACPU		
WILLY GONZALEZ			
Charliett Chirle			
Kawmbelvincient			
Cedyn LANDAUER	LANDAUER		
Bary-Diane Hunt			
Jacob Grant			
Joel Swift			
SARA W. HOOK			
Douglas Mancoske	Moore Archeological		
Julius Rambh			
Christine Nguyen			
ANNA GUSTAFSON			
Brian Johnson			
Dina Reyes			



TALKING POINTS
"engaging conversation"
open house public meeting



SEPT
Tuesday **24** @6:30 - 8:30PM
The Branch
7710 Long Point - 77092
*additional parking at adjacent shopping center
snacks & drinks provided!*

Bring the Family & get in on the conversation!

Showcasing the proposed Spring Branch Trail that will connect Addicks Reservoir, through Spring Branch, to White Oak Bayou. The Trail study overview will include preliminary estimates & strategy implementation.



visualize the conversation at: SBMD.org/7ProjectsToFollow
Spring Branch Trail Study #SpringBranchTrail #SevenProjectsSBMD



PUNTOS DE CONVERSACIÓN
"conversación interesante"
junta pública



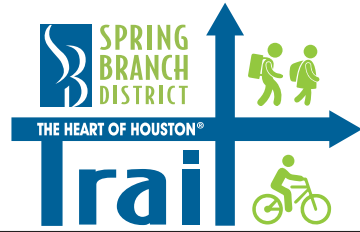
SEPT
Martes **24** @6:30 - 8:30PM
The Branch
7710 Long Point - 77092
*estacionamiento adicional en
el centro comercial al lado*

*¡ Pueden trae a la familia y dinos tu opinión!
bocadillos y bebidas incluidos!*

Vamos a presentar el Spring Branch Trail que va a conectar Addicks Reservoir hasta White Oak Bayou, a través de Spring Branch. El estudio del Trail incluirá Estimaciones preliminares e implementación de la estrategia.



para más información sobre los proyectos, ve a: SBMD.org/7ProjectsToFollow
Spring Branch Trail Study #SpringBranchTrail #SevenProjectsSBMD



Spring Branch Trail Draft Report Public Comments

This document summarizes the public comments and feedback received through the SBMD online comment form during the period of December 3, 2019 through December 20, 2019 on the Draft Spring Branch Trail Study Report that was posted online and advertised through email, Facebook, board meetings, Super Neighborhood meetings, etc. Personal information has been deleted for privacy except where it was provided via Facebook. One comment received was removed as it dealt with a matter not associated with this effort. The comments received have been taken into consideration during finalization of the Report either through text edits, updates to some alternatives/maps, and/or have been noted for further discussions and coordination amongst implementation entities such as Spring Branch Management District and others.

Note: Comments received through Facebook and email are presented on subsequent pages after this summary table of public comments from the online form.

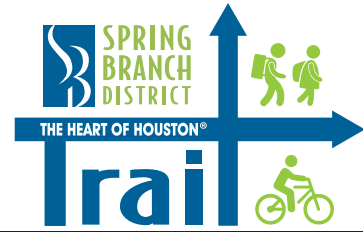
Date	Comment	Zip
12/3/2019	I think this will be a positive thing for Spring Branch and attract young couples to move into, and grow, the neighborhood. (maybe as the older families are moving away)	77043
12/5/2019	Let's get this 1st phase started ASAP! Be sure there are trash receptacles near each entry exit point to help keep the area nice...recycling would be very nice! Thanks for everyone's hard work and dedication to this project!	77055
12/5/2019	I can see a lot of effort, time, and dollars have been spent to date developing this plan; however, I do not see an actual timeline when all this will come to fruition. There has been talk of this for years, but so far, I haven't been able to bike across SB on any trails. It's time for action, implementation. I would like to see concrete dates for when the public can see this all come together. Thank you.	77224
12/5/2019	Houston has changed significantly after the Buffalo Bayou was renovated. Not only increased workability but also increased the city natural beauty,. This project will connect multiple neighborhoods currently divided by highways by reducing the sidewalk gaps. Also projects like this will attract visitors to the city bringin profit to all type of business in the city. Happy to see taxpayers money being invested in projects that come back to the residents.	77092
12/8/2019	A great addition to our community especially for those who wish to SAFELY commute to their place of work. Next step should be a trail running south to I-69 from Spring Branch.	77043



Spring Branch Trail Draft Report Public Comments

(Continued - Page 2)

12/8/2019	This trail would be amazing! I love walking the White Oak trail. Having a trail just as awesome in Spring Branch sounds like a great thing.	77041
12/8/2019	This is GREAT we will finally be able to ride out of spring branch in to downtown without having to ride through a few street that are a bit dangerous while riding alone. CAN'T WAIT!!!	77055
12/8/2019	I live nearby the White Oak Bayou bike trail and would really enjoy using these proposed Spring Branch trails. There is currently not a very good way to bicycle over to Addicks Reservoir, much less any trails going east / west in Houston. The bridge over White Oak bayou drawing looks really nice as well, I'd like to run that trail with my friends often. I cycle to work daily from Ella / TC Jester area along the White Oak Bayou trail to downtown and am very glad the White Oak Bayou trail was created. I think this Spring Branch Trail may encourage others to cycle to work more often as well. Thank you.	77008
12/8/2019	Very supportive of the project. I will absolutely use this trail! However, the proposed crossing and signalization on Gessner is troubling. There are large segments of Gessner which have no signals, but the proposed alignment will place 3 lights within a very short distance. Would strongly recommend that the trail be - somehow - aligned with the signal at Emnora.	77043
12/9/2019	We want this!!!	77586
12/9/2019	Our Hollister Place Civic Group attended the Super Neighborhood meetings, we protested AGAINST this trail and it all fell on DEAF EARS. All the Hollister Place Subdivision residents that are next to the easement were very discouraged to even think that someone from outside our area would tell us what we'd love to have in our area. They don't live there so they have no idea what crime that they are inviting into our area. Even some of the residents that live on Friendship voiced their opinions to protest. What good did it do to even ask us or to listen to us. This trail is being shoved down our throats. I'm very disappointed in Spring Branch. I used to support Super Neighborhood Central, but I'm rethinking that situation.	77080



Spring Branch Trail Draft Report Public Comments

(Continued - Page 3)

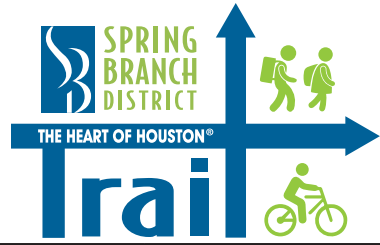
12/9/2019	I ride all over the city, and if there is one thing Houston needs, it's more protected and dedicated bike lanes. Not only for transportation, but for recreation! This proposed addition would provide a great, and safe, way for people to get from the near west side, all the way to downtown via the trail system. How awesome would that be!?! As we have seen with development along Braes, White Oak, Buffalo and Simms Bayous... If you build it, they will come! And people will use it a lot!	77042
12/9/2019	I am very excited about the new planned bike trail to connect Spring Branch to the White Oak Trail. This will allow us to get to many areas of Houston; The Heights, downtown and beyond. I can bike from my house to the trail and not have to drive at all. it will be a safe and comfortable way to bike ride.	77080
12/9/2019	This is a great idea. Houston has the potential to be one of the most bike, run, and activity friendly cities in the US. The weather and topography make it ideal. The only problem is that people have had few options to go to. Now that the bayou trail system has improved, it's necessary to link these trails with other accessible parks in the suburbs. I know my family and I look forward to riding these trails in the near future.	77004
12/9/2019	This would be a fantastic way of increasing bike awareness and travel alternatives across town. Please make this a dream come true for many others as well.	77077
12/9/2019	That is a great idea to have more trails available. However, it seems that the Braes Bayou trail is stalled. Why not finishing it first?	US (N/A)
12/9/2019	The trails are great. Keep up the great work. Add more!	77027



Spring Branch Trail Draft Report Public Comments

(Continued - Page 4)

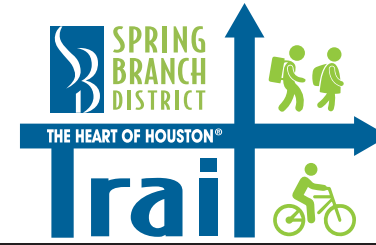
12/9/2019	I am an avid cyclist and welcome the development of a dedicated trail to join addicks to white oak and on to down town. It completed it will be a great amenity for young and old alike. Two or three days a month I commute by bicycle to downtown. I utilize westview drive from gessner to post oak dr to access downtown via memorial park and eleanor tinsley park. Although this is "on road" commuting, not suitable for minors, it could be greatly improved if the on street bike lanes along westview were repainted and regularly swept. At present the lines are faded or worn off and not clearly visible to drivers. The regular sweeping is required to remove debris and dirt that builds up on the shoulder and forces the cyclist onto the main lanes to avoid. I bring this up to make sure it is not lost in the overall plan for the new trail system. I believe any new spring branch train could work in tandem with the on road bike lanes along westview if well marked	77079
12/9/2019	I support this trail from Addicks Reservoir to White Oak Bayou.. This creates a highly desirable corridor that will lift all of Houston. Also, while I could not tell from the graphics whether it is already on the route, the old Inwood Forest golf course would be a scenic contribution to this trail, if feasible.	77025
12/9/2019	This looks awesome!	77008
12/9/2019	I'm excited for this trail!!!! I'm glad you are building! Makes me really happy!	77008
12/9/2019	Please find a better use for this money. Fix the flooding first. No one will use this and the people who try will be mugged or attacked. Some of these areas are not safe. Waste of tax money.	77092
12/11/2019	I fully support this project and encourage all parties to push it to completion as soon as possible. I am a daily bike commuter, and also use my bike for short trips to restaurants, and stores. The Energy Corridor where I live has little bike-specific infra, but this would go a long way in helping cyclists traverse the western corridors toward downtown. Right now there is no way to get from the terminus of Terry Hershey @ BWY8 anywhere further east without risking death on roads. This project would connect Energy Corridor, via the Addicks Res path, to Spring Branch, the Heights & downtown, and hopefully in the future joining North/South bike infra will allow access to the Memorial area as well. I love this, I support it, and I am excited for it. Please please please implement the entire corridor soon!	77079



Spring Branch Trail Draft Report Public Comments

(Continued - Page 5)

12/16/2019	The new Spring Branch Trail looks amazing! I fully support it; It would be awesome to be able to safely cycle from my house in Spring Branch to connect with the White Oak Bayou Trail and all the way into downtown. Seems like it would also be great to provide safe access to kids getting to school. It is wonderful to see Houston and Spring Branch in particular following the lead of many other great cities in the US in providing safe and useful trails for our citizens.	77055
12/16/2019	An interesting project that hopefully will benefit people in the Spring Branch Community. I may have missed this but are there any provisions for security and safety as sadly Spring Branch is no longer the peaceful community that existed when we moved here in 1970. Crime is a concern and I wonder if this is being addressed in this plan	77055
12/16/2019	As VP of Super Neighborhood 14, (which encompasses the area at 290 and 610, and runs north and south along White Oak Bayou) we fully support this plan to link, WOB and Addicks/Barker hike and bike trails. Pls contact us if you need any additional support with your efforts.	77008
12/16/2019	This is yet another exciting enhancement for our area. Thanks	77043
12/17/2019	This trail would effectively connect the Energy Corridor to Downtown Houston. People in the west Houston area have wanted this for decades.	77081
12/17/2019	I strongly support adding off the street paths for walking and cycling. This would be amazing for both my business and me personally.	77007
12/18/2019	I like this and very much agree with it. This was needed when I was living up there a few years back.	77598
12/19/2019	You said along the easement there could be no landscaping. I am hopeful there can be SOME native plantings etc. The current segment along Spring Shadows is so desolate. I know some residents have put plantings at their dead ends. Unlike Braes Bayou path there is no water way along the pathway. Hope you can come to a compromise with the utility company. I realize maintenance might be an issue but there are a multitude of native plants that care low maintenance.	77055
12/19/2019	How are you going to stop people on motorcycles or 4 wheelers from getting on it to do harm to any one using it and to escape police ?	77080



Spring Branch Trail Draft Report Public Comments

(Continued - Page 6)

12/19/2019	I have ridden this space between Beltway 8 and Wirt Road (before the no trespassing signs and gates were installed). With the uncut grass in the space, it is a bit of a challenge but a trail like there is between Gessner and Northbrook (which is used a lot) would be grand. I also regularly ride the reservoir. With a little sidewalk paving and a little extra ride time there could be a safe beltway crossing at Clay road or Hammerly.	77080
12/19/2019	Along some sections of this trail, there is no shade. During the warmer months, there will be few to no walkers or bike riders without shade - too hot. Plant trees along all sections of the trail. Go to some parks here in Houston with no trees, during the summer, the parks will be empty.	77224



Spring Branch Trail Draft Report Other Outreach

Comments to SBMD's Facebook Post on Spring Branch Trail Report

- Mari Nicholson-Preuss** Awesome! I didn't know it would connect to White Oak Bayou trail.
Like · Reply · Message · 1w
- Erik Freiter** Really looking forward to this! Close to my home 🙌
Like · Reply · Message · 1w
- Mélissa Chan** This would be wonderful!
Like · Reply · Message · 1w
- Andrew Pias** Please make my dream come true 🙏🙏🙏
Like · Reply · Message · 1w
- Freddie Sanchez** I support this. 🙌
Like · Reply · Message · 1w
- Katya Morzhueva** This is amazing! Once we have a safe connection between Barker Cypress/George Bush Park levee and Addick levee (by police station) we'll be connecting Cinco Ranch area to ultimately White Oak trail!! This would be amazing!
Like · Reply · Message · 1w
- Alejandro Gzz ..**
Like · Reply · Message · 1w
- Anonie Ymousa** Got my vote, but I live off the Emnora Trail anyway...
Like · Reply · Message · 1w
- Jesse Alston** Personally, I was expecting Terry Hershey Trail to extend further East via widened Memorial Drive roadway or along the Bayou to memorial park. Toss in a couple north-south pathways where the power lines are and you'd have something with accessibility and connectivity to existing networks.
Like · Reply · Message · 5d · Edited
- Jesse Alston** Just read the documentation. It actually isn't all that bad. Hopefully they'll add lights to the trails for safety reasons.
Like · Reply · Message · 1w

Final Advertisement Email from SBMD

[Visit our website](#) for more information about Spring Branch District. [View this email in your browser](#)



Spring Branch Trail Study – Draft Report



Tomorrow is the last day to leave your comment!

The full Spring Branch Trail Study Draft Report is now available online for public comments and feedback. We hope you are as excited as we are about this regional trail and we would love to hear from you about this effort and the Draft Report.

[LEAVE US YOUR COMMENT](#)

Comments will be collected through December 20, 2019.

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You are receiving this email because you opted in at our website

Our address is:
Spring Branch District
9510 Long Point, Ste 100
Houston, TX 77055

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Spring Branch Trail Draft Report Email Comments

This following pages include emails received by the planning team or government entity regarding the Draft Report. Emails and names have been excluded for privacy.

Subject: Spring Branch Management District Centerpoint Trail Comments
Date: Thursday, December 12, 2019 9:05:34 AM
Attachments: [Spring Branch SBMD Centerpoint Trail Comments 12112019.pdf](#)

Below are my comments on the SBMD Centerpoint trail study. I have grouped the comments in synch with the trail segments. I am also attaching a few slides to help illustrate some of the comments.

Segment 1:

1. To reduce costs, at least in the shorter term, this trail could be connected at the north end of Wycliffe Dr/Sherwood Forest St. This would make the connection to the west end of Hammerly 1700' and reduce the trail by 4000'. Wycliffe, Sherwood Forest, Chatterton and other streets were recently rebuilt and include new sidewalks. With low vehicle counts, these streets make good on-street bikeways to connect to the Addicks/Terry Hershey trail at Chatterton. The only non-Centerpoint property is Harris County Flood Control District at the north end of Wycliffe, but no drainage is located here, so approval by HCFCD should be very straight forward.
2. With the 4000' reduction from #1 above, please consider building a trail 2500' north from the west end of Hammerly to the USACE property boundary, which provides access to the Addicks Dam trail which is used by off-road bikers and the natural surface trails in the Addicks Reservoir/Cullen Park which connect to the 2155 acre Bear Creek Pioneers Regional Park. A slide showing this opportunity is attached.
3. Since this is outside the SBMD boundary, you may want to investigate Federal Land Access Program (FLAP) funding for this segment. This program provides funds for projects which provide access to federal lands, such as the USACE Addicks Reservoir.
4. It should also be highlighted that this western terminus of the SBMD trail connects to the Addicks Trail (at Chatterton), which connects to the Energy Corridor District (a large employment center), Terry Hershey trail, George Bush Park trail and Mason Creek trail, with additional connections to Cullen Park/Mayde Creek, Brays Bayou and Fort Bend Willow Fork Drainage District trails being studied currently.

Segment 2:

1. Please insure that bollards or other devices are installed at the west end of Hammerly to prevent 4 wheelers, motorcycles and other motorized vehicles from accessing the Centerpoint/HCFCD/USACE property.



Spring Branch Trail Draft Report Email Comments

(Continued - Page 2)

2. Consider a 10' wide sidewalk on the north side of Hammerly from Brittmoore to BW 8, if possible. I think most of the trail users will use this side of Hammerly since it provides a direct connection between the trail west and east of BW8. The planned 8' is good, but 10' would be better.
3. Not sure how much the mid-block crossing will cost at the intersection of Hammerly & Westwood Elementary/St Joseph Orthodox Church, but you might consider a full signal light intersection to provide maximum safety for trail users crossing Hammerly.

Segment 3:

1. Instead of a mid-block crossing of Gessner near the Emnora trail, I would prefer to see the trail routed 200' south the Gessner/Emnora signalized intersection to provide the safest crossing possible. The sidewalks could be rebuilt to 8' wide from Emnora north to the trail on both sides of Gessner. These upgraded sidewalks would also provide comfortable access to the Hillendahl Library and the southbound METRO Gessner Bus stop #46. The northbound bus stop is just south of Emnora. Perhaps METRO (first mile/last mile) can help fund these sidewalks.

Segment 4:

1. I prefer the "Neighborhood" route if there is sufficient ROW along the drainage ditch to build the trail. This provides a signalized intersection crossing of Blalock; however, it appears the ROW is limited on the north side of Emnora from Campbell to just east of Blalock. Since the Buffalo Creek Elementary school attendance zone is oriented N-S, the E-W trail will not be a significant help for students commuting to school, but there are sidewalks on both sides of Blalock north of Emnora to the school to allow for school commuters.

Segments 6&7:

1. Half way between Bingle & Wirt, the trail could be routed north along the west side of the HCFCD or COH drainage ditch with mid-block crossings of Kempwood Dr and Blankenship Dr and continue north to Brickhouse Gully. Part of this drainage near Brickhouse is owned and part appears to be leased from neighboring landowners. A recreational easement is likely needed from CCP Ltd & Rectorseal, but the Rectorseal easement would be outside their fenceline and within the HCFCD drainage easement.
2. Then head east, preferably on the south bank under the Southern Pacific RR & Hempstead Hwy (9' of headspace under each bridge and 12'-14' width available for trail underpasses), to Jim St, then on Jim St ~540' to what appears to be a COH Arsenal St dead-end ROW to the north, across the COH property to Bolin St, then on the north bank of Brickhouse Gully over Benbrook Elementary & HCFCD property and under Hwy 290 (11' of headspace). On the east side of Hwy 290, 9 easements would be required to access the HCFCD property up to Chantilly Lane; however, since HCFCD has a property acquisition program active in the area, they may



Spring Branch Trail Draft Report Email Comments

(Continued - Page 3)

be acquiring a property closer to Hwy 290. https://www.hcfc.org/Portals/62/Home-Buyout-Program/homebuyouts_buyoutprogram.pdf From here on-street Chantilly St across Antoine to the Scarborough H.S. property, then north bank to Costa Rica Rd. Then south to Saxon Dr and east on-street Saxon Dr to Mangum Rd. Across Mangum to the south bank of Brickhouse Gully under railroad bridge (10' headspace & 10' width without a retaining wall), then cross Watonga Blvd either at grade/mid-block or underpass. Head space is only 6' 8" in current configuration, unless the bank under the bridge is excavated. Could cross to north side of Brickhouse Gully at Watonga Blvd if property rights restrict a south side trail.

3. Bridge over White Oak Bayou to the south end of TC Jester Park south of 43rd St and north of 34th St. and connecting to the White Oak Bayou trail.
4. This route would provide more residential access (Langwood, Hempstead Gardens, Oak Forest, Forest Pines and Mangum Manor neighborhoods) compared with the 34th St option which runs through an industrial/commercial district.
5. This route also provides high comfort under crossings of two railroad tracks, 290 and Hempstead Hwy.
6. This route also connects to Mangum Manor Park, Scarborough High School, Benbrook Elementary School, Langwood Park and the COH property (~5 acres) south of Brickhouse Gully from Langwood Park.
7. HCFCD also owns all but 17 lots between Bingle Rd and Ojeman Rd going west on Brickhouse Gully, which may provide a future opportunity to connect more of the Langwood and Binglewood neighborhoods to the trail in the future.

Thank you for the opportunity to comment and please contact me at this email address or by phone

This following nine pages support this email and were included as an attachment. The alternatives presented in Chapter 4 and 5 of the Final Report have been updated since the Draft Report based on team discussions surrounding this public comment email and subsequent emails supporting interest in considering other alternatives.



Spring Branch Trail Draft Report Email Comments

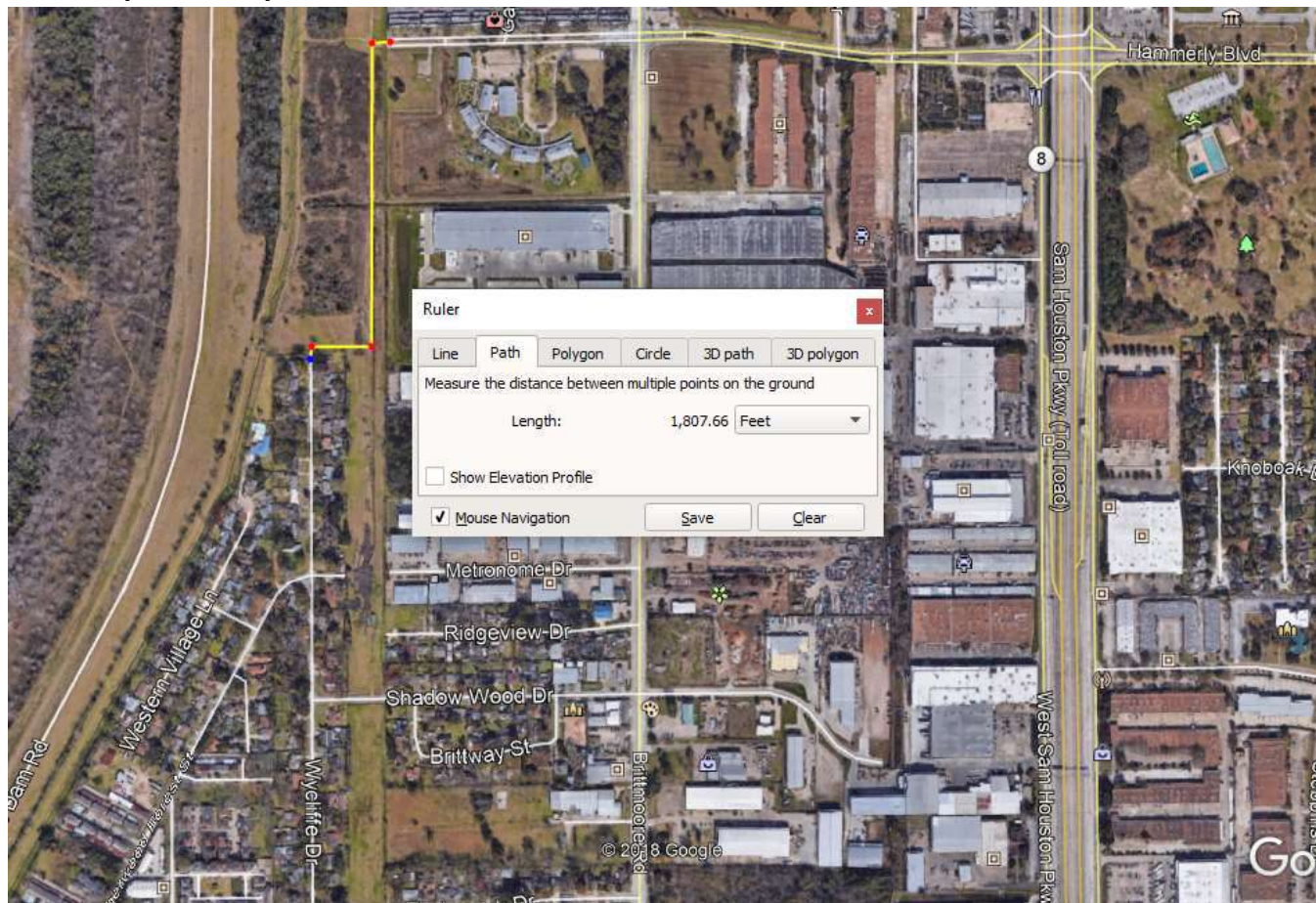
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Spring Branch Trail Draft Report Email Comments

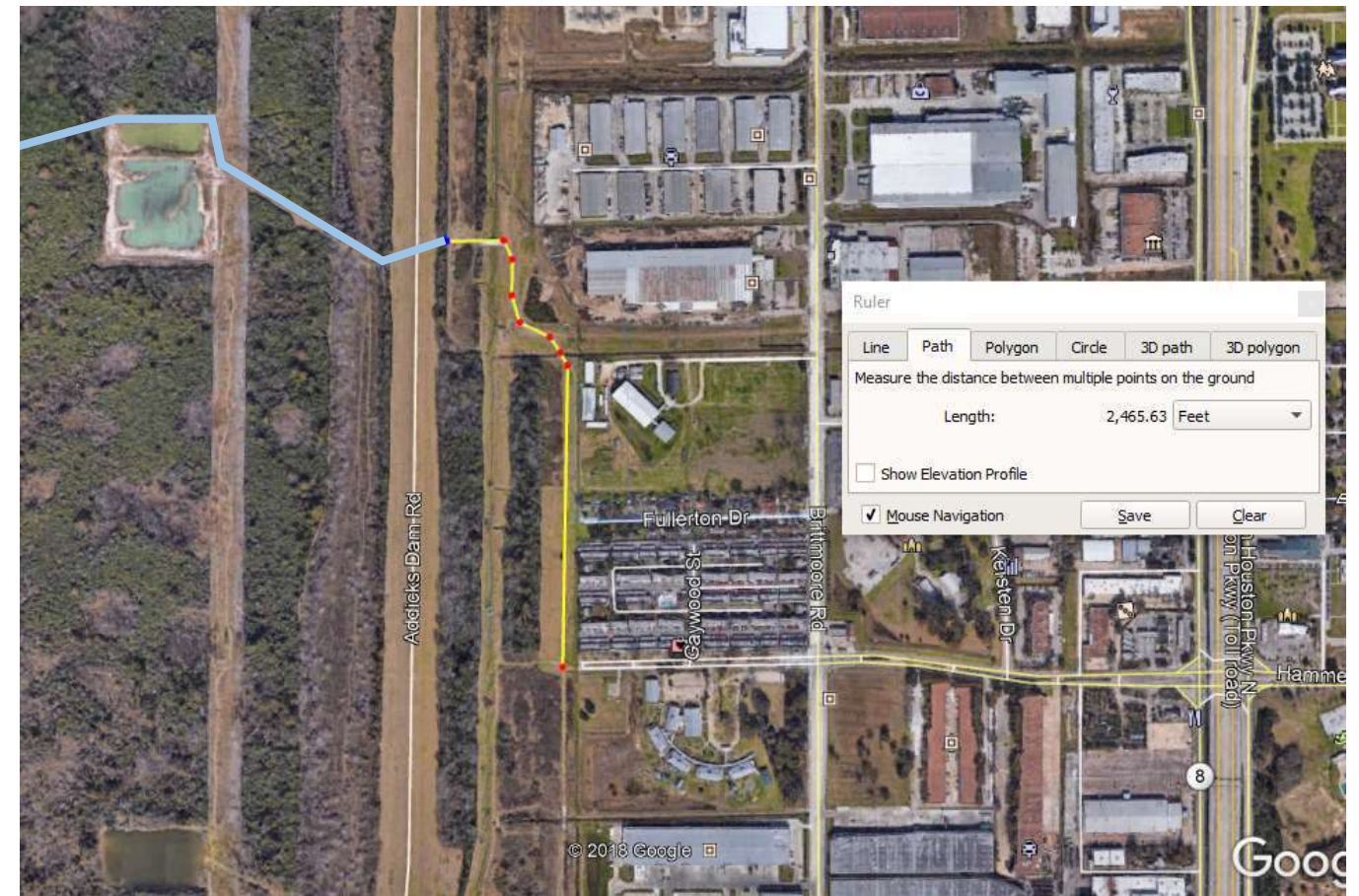
(Continued - Page 5)

1800' Trail from Hammerly to N. end of Wycliffe Dr/Sherwood Forest St. Reduces near term trail need by 4000'. Wycliffe/Sherwood Forest & Chatterton are all new streets with new sidewalks.



Attachment page 1 of 9

2500' Trail (all on Centerpoint) Connecting to USACE Property & Natural Surface Trails to Bear Creek Park.



Attachment page 2 of 9

Blue Lines = Natural Surface Trails in Addicks Reservoir/Cullen Park Connecting to Bear Creek Park

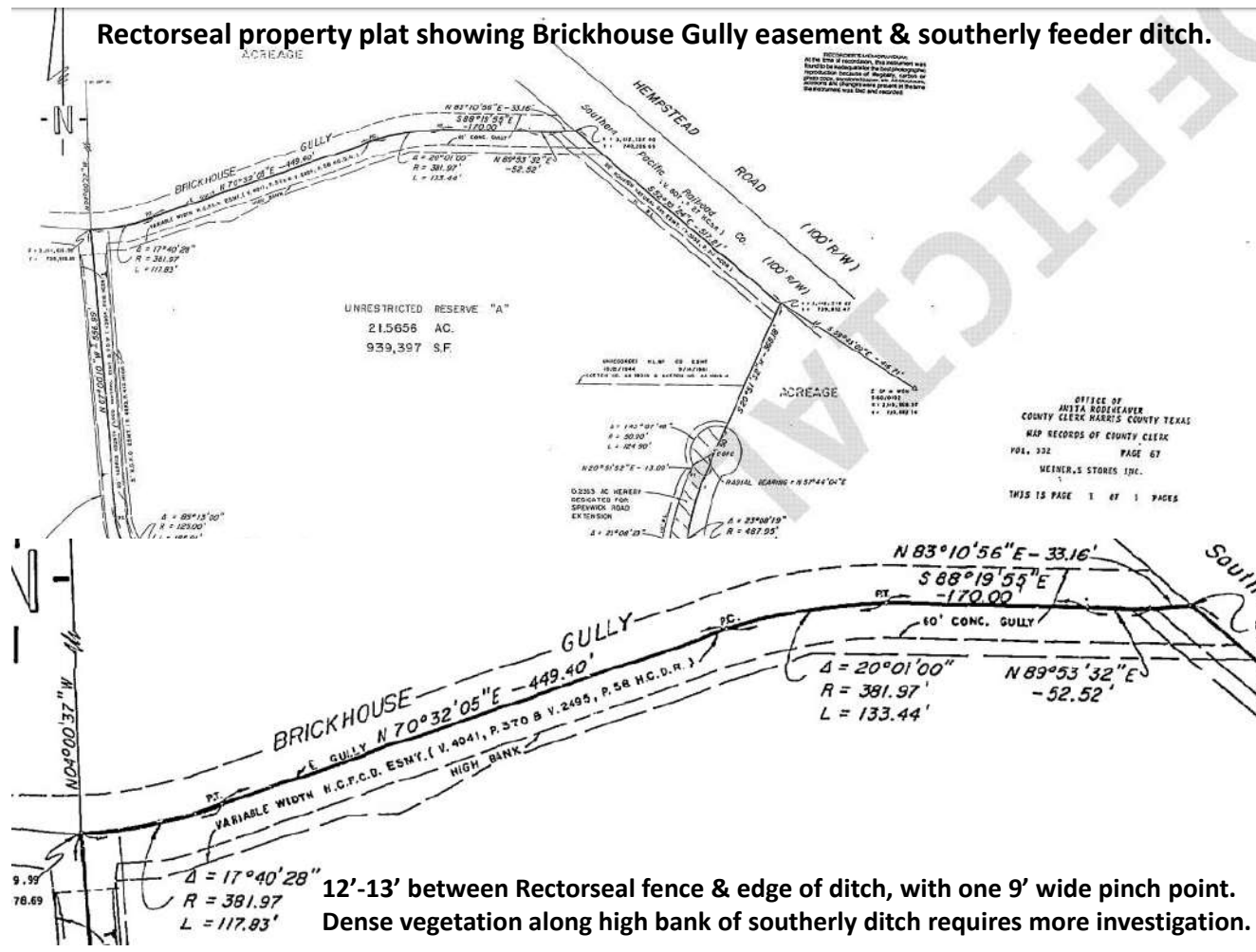


Attachment page 3 of 9

Alternate trail routing between Bingle/Wirt and Hwy 290



Attachment page 4 of 9



Attachment page 5 of 9



Attachment page 6 of 9



Spring Branch Trail Draft Report Email Comments

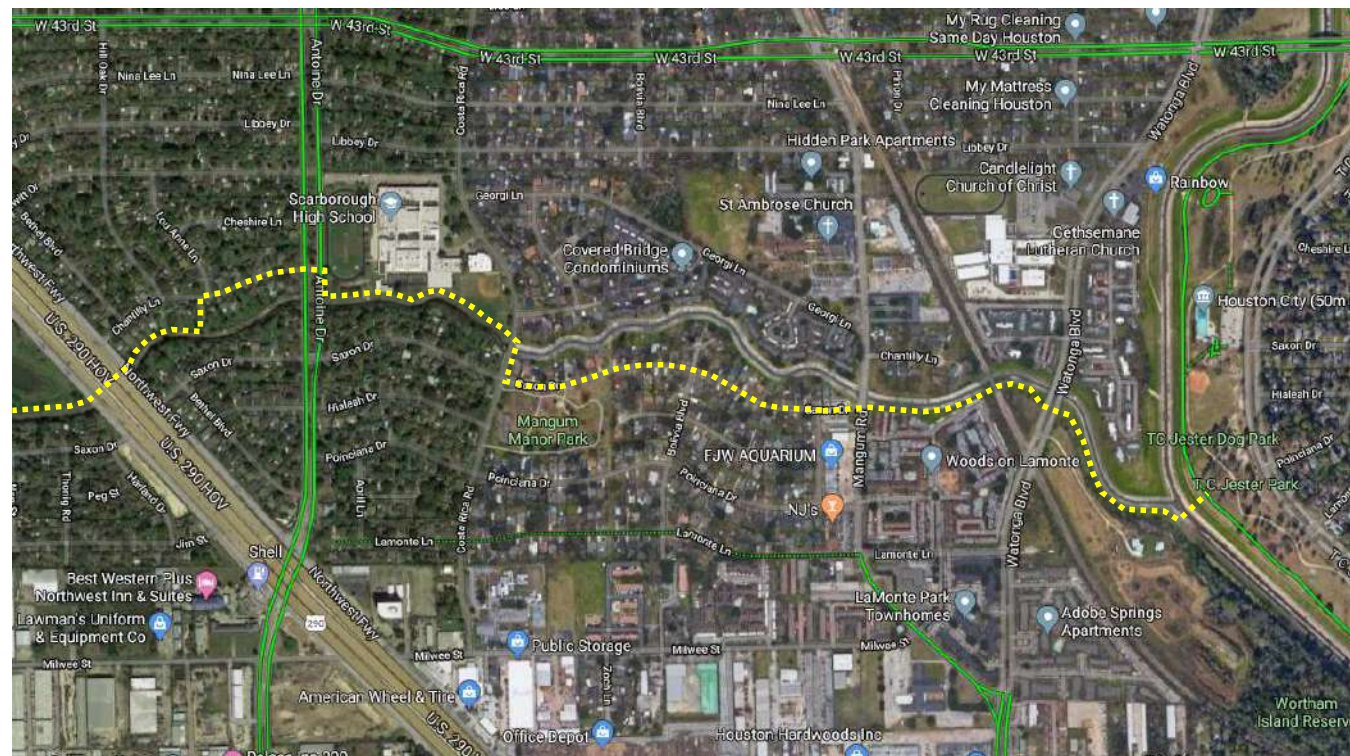
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Spring Branch Trail Draft Report Email Comments

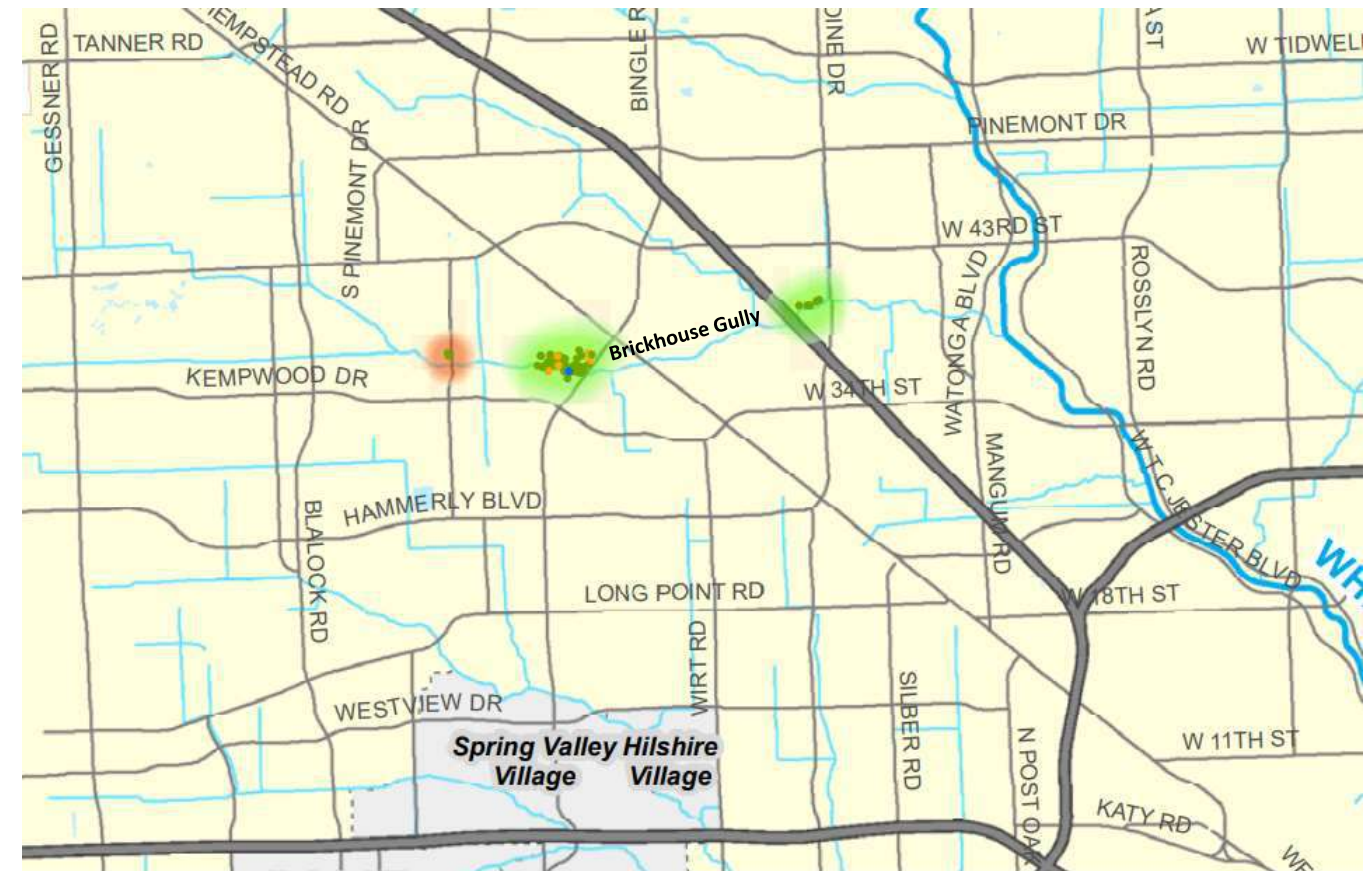
(Continued - Page 11)

Suggested trail alignment between 290 and White Oak Bayou



Attachment page 7 of 9

Green & Beige shaded areas are HCFC Home Buyout Target Areas.



Attachment page 8 of 9



Spring Branch Trail Draft Report Email Comments

(Continued - Page 12)



Spring Branch Trail Draft Report Email Comments

(Continued - Page 13)

Sent: Saturday, December 14, 2019 11:16 AM
To:
Subject: Centerpoint Trail Segment 1 Comments
Attachments: Segment 1 Recommendation.pdf

, I understand you are collecting comments on the DRAFT plan.

I have not reviewed the entire plan but I am particularly concerned about the routing of Segment 1. There is a very reasonable off-street trail option that would offer greater safety with comparable access.

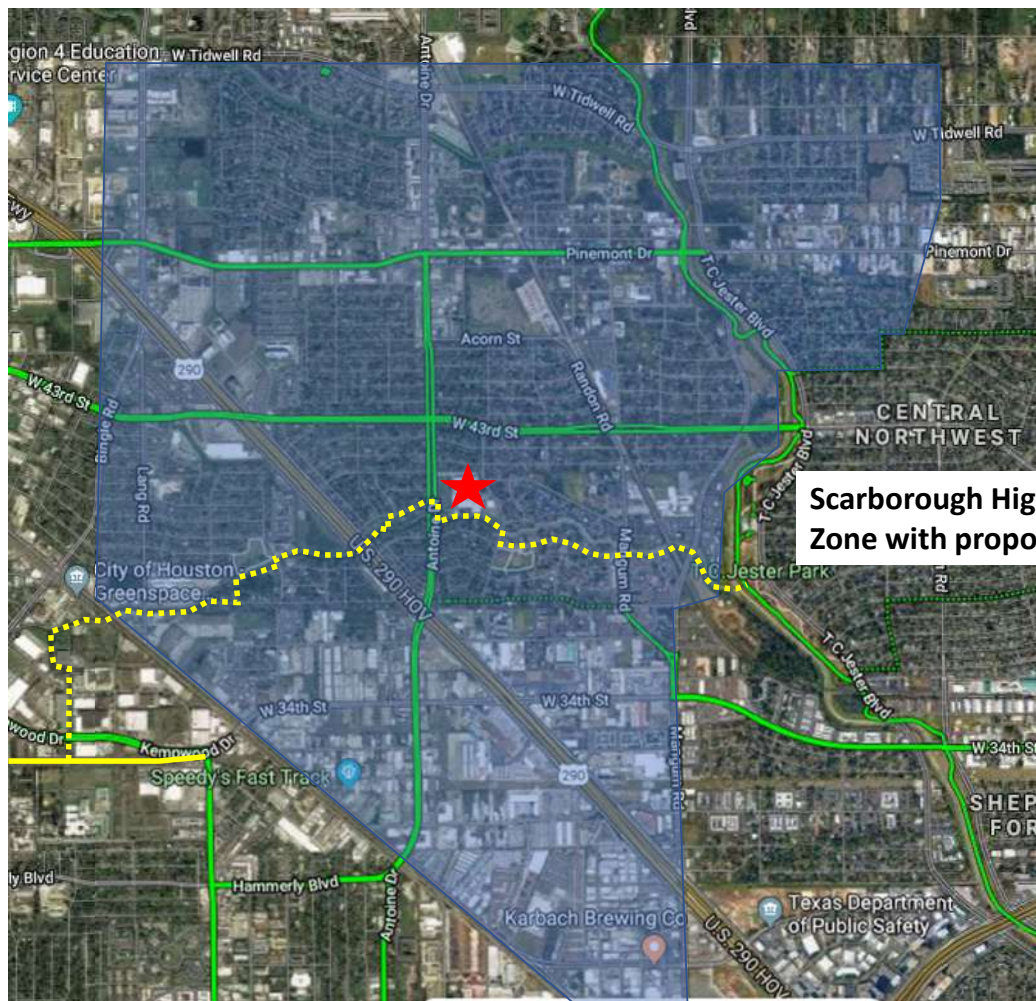
My comments on Segment 1 are attached.

This email included the following three-page attachment.

Attachment page 1 of 3

To improve the safety and utility of the trail, I recommend the Segment 1 alignment be an extension of the axis north to Hammerly. Relative to the route in the DRAFT, this alignment would eliminate five on-street intersections which two are mid-block crossings and one has particularly bad sight lines. There are a number of factors that offset the additional cost of bridging the drainage, including the elimination of the mid-block crossings and route signage, as well as the possible use of the surplus bridge from Terry Hershey at Highway 6.

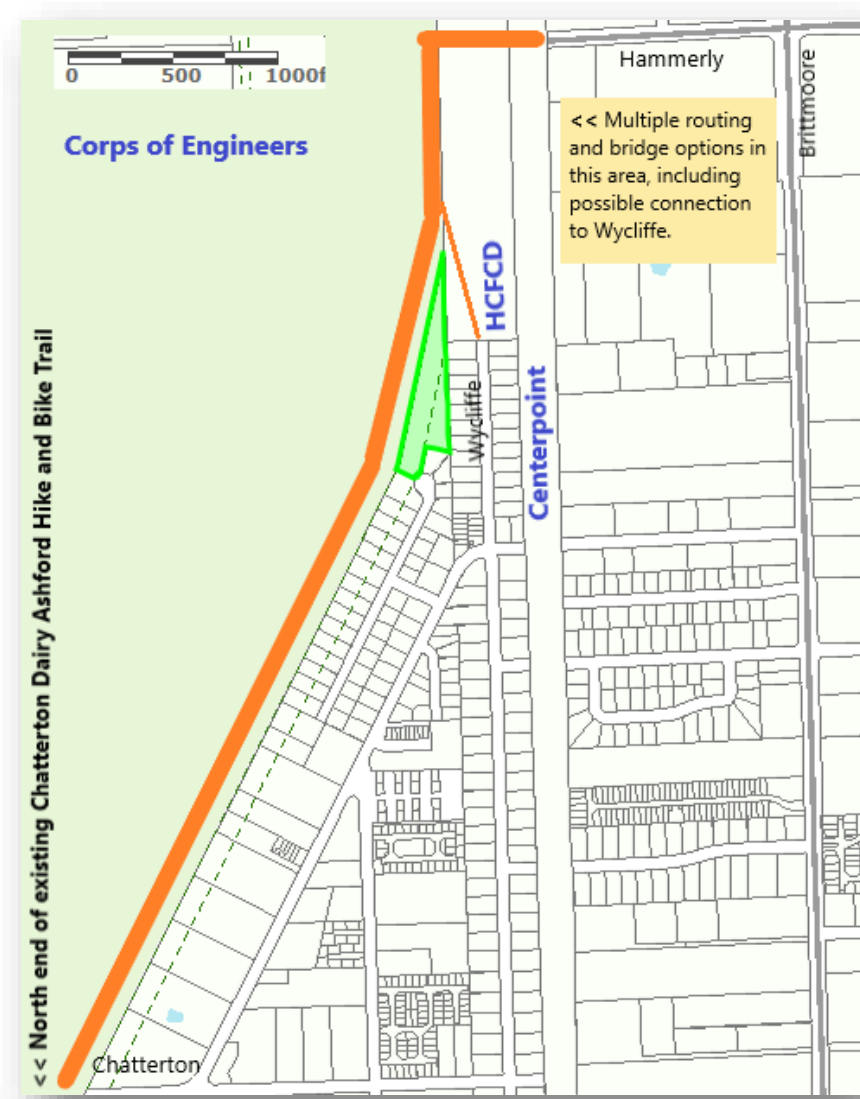
Off-street trails are generally preferred to other options, and in the case of Segment 1 implementation of an off-street option would require two additional landowners and a bridge. Local neighborhood access could be enhanced by a spur to the north end of Wycliffe or a longer branch to Metronome. The landowners are the Corps of Engineers, Harris County Flood Control District, both of which are experienced in the installation of off-street trails. Though they require lengthy application and permitting processes, the timing envisioned for Segment 1 allows sufficient time to obtain the easements and permits. Regarding the bridge, the current width of the drainage channel is about 60 feet. Due to the Barker Dam reconstruction, a 75-foot bridge is currently surplus and available which might be suitable for application and reduce the cost. (Note that the Chatterton bridge which is downstream and crosses at a diagonal is about 100 feet long.)



Scarborough High School Attendance Zone with proposed SBMD trail.

Attachment page 9 of 9

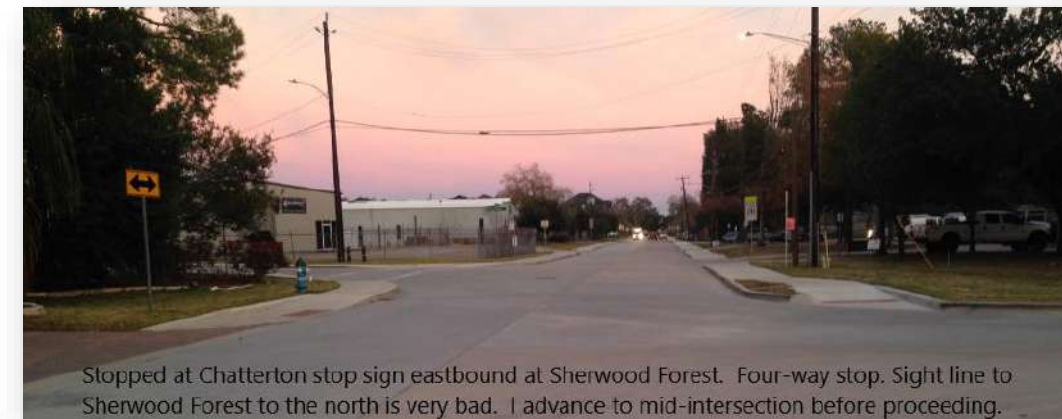
Attachment page 2 of 3



The proposed Segment 1 on Chatterton involves 5 on-street intersections, two of which are mid-block. In my experience, mid-block crossings such as those on the Columbia Tap trail are undesirable for cyclists. Experience come to a complete stop to make the crossing, and inexperienced cyclists are at risk when they don't. Though only two on Segment 1 and sight lines are good at both, why set up vehicle conflicts when they can be reasonable avoided.

Attachment page 3 of 3

The existing intersection at Chatterton is problematic due to sight lines. Eastbound, the sightline to Sherwood Forest to the north is very bad. I use this route on my commute and I have had conflicts at this intersection. Though the recent conversion to a four-way stop should improve the situation, the risk still exists. (When I stopped to take this picture, all five vehicles that passed through ran the stop sign.)



I have extensive experience in this area since I have commuted to work from Tanner/Brittmoore to the Energy Corridor regularly since 2005. When Brittmoore was widened I began riding through this area frequently as an alternative to North Eldridge.

In summary, a very reasonable off-street option exists to the DRAFT Segment 1 which would be safer and more attractive to pass-through users, and could provide very comparable access to the local neighborhood.



Spring Branch Trail Draft Report Email Comments

(Continued - Page 16)

Follow-up email to previous one:

I continue to believe that an off-street alignment is preferred.

However, if it is determined that COE/HCFCD will not provide easements/ROW, I think a better route would be to use Sherwood Forest to a trailhead at either Metronome or the north end of Wycliffe. This would be safer and shorter for users and would be less costly than the current DRAFT. In particular, it would eliminate two mid-block crossings.

I regularly use Sherwood Forest on my commute to work. I enter the neighborhood from Brittmoore on Shadow Wood Drive, jog north on Wycliffe, then take Sherwood Forest to the Chatterton bridge.

I find it a better route than Wycliffe/Chatterton.



As I said, for a high-comfort system like you are trying to create, an off-street trail is definitely preferable and should be achievable with the HCFCD and Army COE landowners. Sherwood Forest/Metronome to me would be the second option.



Spring Branch Trail Draft Report Email Comments

(Continued - Page 17)

Sent: Sunday, December 15, 2019 3:21 PM
To:
Cc:
Subject: Spring Branch Management District CenterPoint Trail

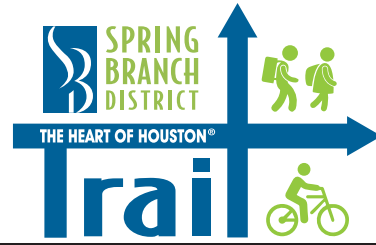
Hi

Thanks for your efforts relative to the trail from Brittmoore to White Oak. It's so exciting to see new trails north of the freeway!

Please consider not going through the neighborhood on segment 1. This may avoid a bureaucracy (is that the reason?) but significantly increases risk to trail users.

Thanks for your work on the trails,

Resident near the Addicks reservoir



Spring Branch Trail Draft Report Email Comments

(Continued - Page 18)

Subject: Spring Branch Management District Center Point Trail Study - Public Comment until Dec. 20
Date: Wednesday, December 18, 2019 10:28:58 AM

Dear

I am writing to you in regards to the proposed CenterPoint Trail, which is supposed to run along the power line right of way from Addicks at about Hammerly to White Oak Bayou.

I live north of Addicks Reservoir and I would prefer to see the existing multi-use path which begins at Dairy Ashford extended as far north to Hammerly rather than run through the neighborhood. This would be consistent with a future trail extending to Clay Road for people like me. In addition, I prefer to use trails rather than streets if possible, and it is clear there is plenty of open government land from the end of Hammerly to the Chatterton bridge.

Thank you so much for considering my comments! I hope you find them useful, coming from a frequent user of biking trails!

Kind regards,



Spring Branch Trail Draft Report Email Comments

(Continued - Page 19)

Subject: Spring Branch Trail Study
Date: Saturday, December 28, 2019 1:13:33 PM

I know the deadline for public comment was 12/20 but I've been out of town and hope that I can still add mine to the chorus of voices expressing support for this exciting initiative! My wife and I enjoy being active and ride our bikes at least twice a week. Mostly we ride in Bear Creek, Terry Hershey and G. Bush, but regularly put our bikes on the car and go to White Oak and Brays Bayous.

We really feel that providing safe and comfortable paths increases the quality of life in a community. The SBT would provide an important link and significantly improve the network of trails around Houston.

Since we're on the west end of your proposed SBT we would also like to advocate for Alternative C on page 80. I'm sure that coordination with Harris County would require more effort, but the result would eliminate the need to cross several neighborhood streets and provide a much smoother linkage and better long term solution.

Thanks for your efforts - we really look forward to riding this path!

APPENDIX B STEERING COMMITTEE MEETING SUMMARIES



Meeting Summary Steering Committee #1

The Spring Branch Trail Study's first Steering Committee meeting was held Wednesday, February 27, 2019 from 9:30 AM to 11:00 AM at the Spring Branch Management District's office. Over twenty people participated in the steering committee meeting.

Chelsea Young kicked off the meeting with Introductions, having all participants introduce themselves to the group. A slide presentation was given that included: meeting objectives, SBMD overview and concurrent projects, a study overview, and the purpose of the steering committee as well as upcoming proposed meeting dates and ways to stay involved. Josh Hawes from the SBMD spoke on behalf of the District about the current projects and momentum they are experiencing. Clint McManus spoke on behalf of H-GAC to introduce the Special District Study program and how this project fits in.

After the presentation, meeting participants were encouraged to gather around one of four table maps that were laid out for an interactive charrette to identify destinations, barriers, and opportunities mostly focused on the regional CenterPoint trail corridor. Each table had a facilitator that was a part of the consultant team for this study. After the map exercise, staff took photos of the maps to record the notes, dots, and anything else discussed during the charrette activity. The information gathered will be compiled with the consultant team's notes and the public input that will be received at the public meeting as well as from the interactive online map resource, "map.social". The data collected will be used to identify destinations where people want to walk/bike, identify barriers to connectivity, and will help identify key corridors for walking/biking along the CenterPoint easement and north/south to destinations throughout Spring Branch.

The next Steering Committee will be March 27, 2019.

Attachments:

- Agenda
- Sign-in Sheet
- Meeting objectives and role of steering committee handout
- Charrette instructions sheet





Spring Branch Trail Study – Charrette Instructions

Objective: To become familiar with the study area and to identify ways the Spring Branch Trail connects local and regional multimodal access points and destinations in meaningful ways.

This exercise will identify local/regional destination points, trail access points, further refine corridor alignment, and identify any challenges or barriers to implementing potential recommendations.

Draw, place stickers, and write on the map:

Identify Destinations – Stickers/Text

- Regional – Sticker - Blue 
- Neighborhood – Sticker - Yellow 

Assess Trail Corridor Alignment – Marker - Red

- Assess viability of current alignment
- Identify alternatives or other route options

Identify Connection Points/Access Points to/from Trail – Marker - Green(ish)

- Transit/Transit Hub Connections
- Houston Bike Plan Connections
- Neighborhood Connections and Physical Access
- School Connections and Physical Access
- Access to Local and Regional Destinations

Identify Problem Areas – Stickers/Marker - Orange

- Physical Barriers
- Coordination Challenges (property owners, etc.)
 - Include entities to engage/coordinate with



Meeting Summary Steering Committee #2

The Spring Branch Trail Study's second Steering Committee meeting was held Wednesday, April 24, 2019 from 9:30 AM to 11:00 AM at the Spring Branch Management District's office. Eighteen people participated in the steering committee meeting (Josh Hawes is not on the sign-in sheet but was in attendance).

The agenda for the meeting was as follows:

- Welcome
- Opportunities
- Design Considerations
- Proposed Alignment & Network
- Next Steps

Welcome

Chelsea Young welcomed the Steering Committee and all stakeholders introduced themselves. A list of attendees is included on the attached sheet. All attendees received a draft project alignment.

Opportunities

Chelsea Young presented the results of the project team's existing conditions data collection.

The following comments were received during this section:

- Harris County Precinct 4: Precinct 4 has more pocket park locations than were displayed on TEI's park destinations map. Precinct 4 volunteered to share these locations.
- Question from HGAC: Why were some schools missing from ridership data? (Chelsea): TEI only had SBISD ridership data and is seeking to acquire HISD ridership data for the area.

Design Considerations

Eleni Pappas presented the project team's toolbox of on- and off-street design treatments that may be used on the corridor.

Michael Robinson presented the project team's toolbox of landscaping and wayfinding treatments for the corridor and trailheads.

The following comments were received during this section:

- Question from HGAC: How will the signage compare b/w the HPB and the SBMD segments? (HPB): HPB will not be putting their logo on the signs in their section, but HPB believes that there should be some way to designate who funded what. HPB agrees that signing should be somewhat consistent through the corridor.
- Question from HGAC: Does CenterPoint allow anything in their easement to be more than 3' tall or does that rule only apply to vegetation? (Michael): CenterPoint allows for lighting up to 6' tall, everything else only 3' tall. Shade structures are not allowed in the CenterPoint easement, so they are being prioritized at trailheads.



Meeting Summary Steering Committee #2

(Continued - Page 2)

Proposed Alignment & Network

Chelsea presented the proposed and alternative alignments of each segment of the Spring Branch Trail. Later, Chelsea presented future trail connection opportunities.

The following comments were received during this section:

- Harris County Precinct 4: Mike Howlett said Precinct 4 has had difficulties cooperating with the U.S. Army Corps. of Engineers to design a top-of-dam concrete trail along Addicks Reservoir.
- COH Planning Dept.: Megan Campbell, PWE department recommended caution deploying two-way cycle tracks – teaching drivers to look both ways before turning may be particularly difficult in this area.
- Dave Durham from the Spring Branch North Super Neighborhood: Dave commented that the neighborhood along Emnora west of Gessner is eager to extend the existing trail into their neighborhood and to be able to more easily cross Gessner. They are eager to get this trail going as soon as possible and asked what will it take to get to that point.
- Harris County Precinct 4: Gessner is the dividing line between Precinct 3 and 4, so the project team may need to engage with Precinct 3 to create a crossing.
- Question from HGAC: Is SBISD interested in acquiring property by Buffalo Creek Elementary? Answer: Unclear. SBMD added that they learned today that the superintendent of SBISD is leaving, so negotiations may be difficult at this time.
- Harris County Precinct 4: Mike Howlett commented that Precinct 4 had recently expanded a 10' trail project to a 12' trail, and recommended that the project team should consider a trail wider than 10'.
- Bike Houston: Suggested center stripe for trail. The project team agrees to take this into consideration.

Next Steps

Chelsea presented the calendar of upcoming public meetings and project phases. The next Steering Committee Meeting will be June 19, 2019 and the next Public Meeting will be in July, presenting the "Corridor Plan and Preliminary Recommendations" project phase.

The following comments were received during this section:

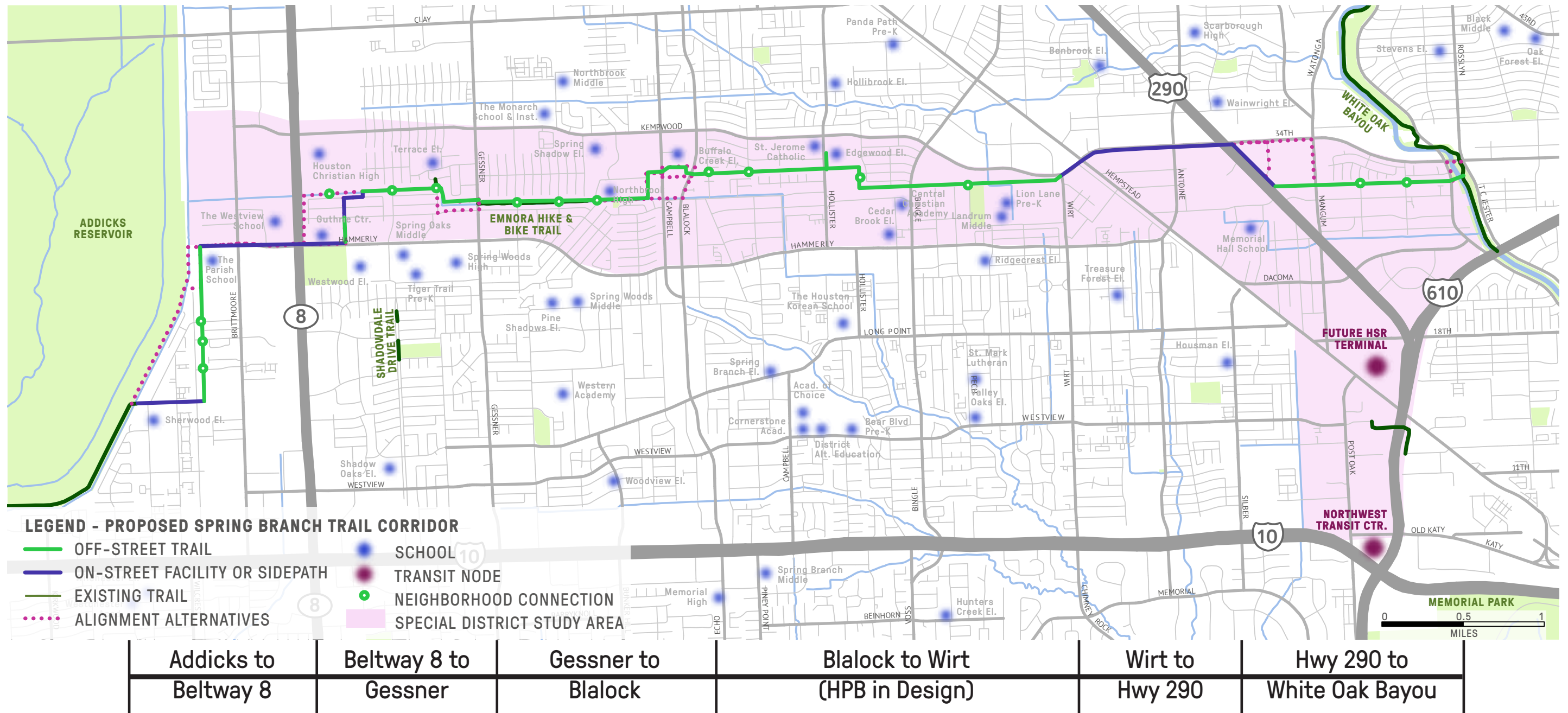
- Question from HPB: Will the project team be presenting trail design at the July public meeting? Answer (Chelsea): Yes.
- HPB: Suggested that project team should cooperate with HPB to meet with civic clubs individually before July public meeting. Chelsea agrees.
- Question from COH Planning Dept.: Will the project team be presenting neighborhood connections at the July public meeting? Answer (Chelsea): Yes.

Attachments:

- Agenda
- Sign-in Sheet
- Proposed Trail Corridor Map - handout

DRAFT - FOR STUDY PURPOSES ONLY

April 24, 2019



SEGMENTS: FROM ADDICKS TO WHITE OAK BAYOU



Meeting Summary Steering Committee #3

The Spring Branch Trail Study's second Steering Committee meeting was held Wednesday, June 19, 2019 from 9:30 AM to 11:00 AM at the Spring Branch Management District's office.

The agenda for the meeting was as follows:

- Welcome and Recap
- Preview Draft Spring Branch Trail Schematic
- Preview Proposed Spring Branch Trail Network
- Discuss Upcoming Public Meeting

Attendees:

- Eleni Pappas, Chelsea Young, George Barrow - TEI
- Keri Hoppie - Midtown Engineers
- Bryan Young - HCP4 Parks
- Lisa Kasianowitz - Houston Parks Board
- Anita Hollmann, Clint McManus - HGAC
- Steve Ashy - Super Neighborhood Alliance
- Megan Campbell - COH-HPW-TDO
- Qing Li, Ana Ramirez - TXDOT
- Catherine Barchfeld-Alexander - SBMD, Super Neighborhood 85
- Rusty Graham - SBISD
- Bowen Roberts - BikeHouston
- Aubin Pickens, Katherine Cheng - METRO

Minutes:

Chelsea presents trail walkthrough.

- Catherine: question about whether we've approached the two properties on either side of chatterton trailhead parcel. A: No, but we should. Catherine knows people at the apartment complex and could get us in touch with the HOA
- Recommendation from Anita: formalize that the parking lane on hammerly is a queueing lane
- concerns about 90 mph cars on Brittmoore - will they get signs along Brittmoore warning of upcoming crossing? A: there will be bike signals, warning signs an option
- Question from Ana: Who will maintain the armadillo bike lanes on Hammerly? A: the city will
- TXDOT says coordination needs to happen about BW8 underpass. Points out that there will be drainage effects if we move curbs
- Q from Catherine about 12' lanes. A: 11' is sufficient, city agrees, Ana pushes back
- Q from TXDOT about the nature of midblock crossing @ Gessner -- we will show what we recommend later
- Suggestion from Catherine to consider using ditch easement on S side of ditch right along Emnora to avoid easement purchases from businesses on N side
- Suggestion from Catherine and Megan to use light at Emnora & gessner and do neighborhood route to Lazy Spring
- Suggestion from Catherine to take Centerpoint easement all the way to



Meeting Summary Steering Committee #3

(Continued - Page 2)

- Hempstead. Response: we've looked at it and it makes it difficult to cross
- TIP project to do TXDOT boulevard thing on Hempstead. Need to consider their plans going forward. Also my290.com has the easement for high speed rail, which we can incorporate into our plans
- Ana asks whether we've projected out future traffic volumes when considering taking a lane on 34th. A: Yes we have
- Ana expresses concern around use of armadillos, taking a lane on 34th, whether there is enough space for a sidepath on approach, the growth rate that we used in our traffic modeling for taking a lane
- Ana doesn't like 290 frontage road sidepath. Megan suggests example in Austin -- a 2-way cycletrack off of Mopac. TEI asks about TXDOT's sidepath project at 290 and 610 and whether they have figured out the 2-way along frontage road problem -- Ana asserts that there are no driveways on that project and therefore no conflicts
- Ana wants us to draw an alternative alignment crossing 290 at Dacoma
- Ana asks whether the trailhead plazas are cool with CenterPoint. A (Michael): probably

Michael presents landscaping.

- Question from Steve: What signage will be used? A: Sign family from Houston Parks Board Beyond the Bayous projects; mileage signs possibly embedded in pavement. Megan supportive of embedded signs
- Suggestion from Clint to include shade at trailheads wherever possible. Michael suggests possible partnership with city to do street trees in sidewalk buffers at trailheads, or behind seating walls

Chelsea presents regional connections.

- Suggestion from Bike Houston for more northward regional connections. A: Agree -- didn't include due to uncertain routing arising from disconnected street grid. Can include desire lines without specific route

Attachments:

- Agenda
- Sign-in Sheet
- Proposed Trail Corridor Map - handout



Steering Committee #3 June 19, 2019 | 9:30 AM

Spring Branch Management District: 9610 Long Point Road, Suite 130, Houston, TX 77055

Agenda

1. Welcome and Recap
2. Preview Draft Spring Branch Trail Schematic
3. Preview Proposed Spring Branch Trail Network
4. Discuss Upcoming Public Meeting
Tentatively Late August/Early September

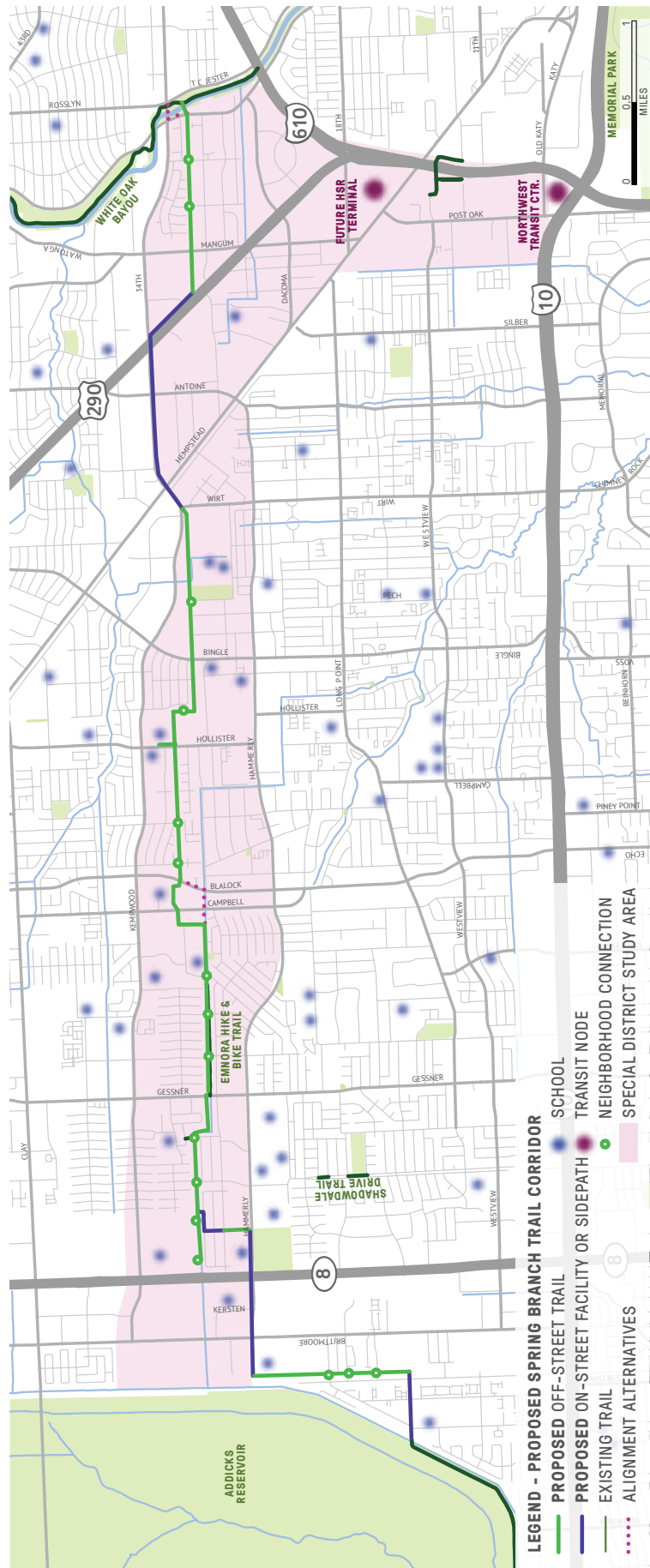


Spring Branch Trail Steering Committee Meeting #3 June 19, 2019

Sign-In Sheet:

Name	Organization	Email
Bryan Young	HCPM Parks	
Lisa Kasanavik	Houston Parks	
Anita Hollmann	H-GAC	
STEVE ASH	SWA	
Megan Campbell	City of Houston	
Qing Li	TXDOT	
Keri Hoppe	Midtown Engineer	
CATHERINE BARCHELON	Alexander SBSD	
Ruby Graham	SBSD	
Bowen Roberts	BikeHouston	
Aubin Pichon	METRO	
Katherine Cheng	METRO	
Ana Ramirez	TXDOT	
Michael Robinson	SWA	
Chris [unclear]	TEI	

DRAFT SPRING BRANCH TRAIL CORRIDOR



STEERING COMMITTEE MEETING #3 HANDOUT FOR DISCUSSION
JUNE 19, 2019



Meeting Summary Steering Committee #4

The Spring Branch Trail Study's second Steering Committee meeting was held Wednesday, August 21, 2019 from 9:30 AM to 11:00 AM at the Spring Branch Management District's office.

The agenda for the meeting was as follows:

- Welcome and Recap
- Segment Trail Corridors
- Renderings and Cost Estimates
- Discuss Phased Implementation
- Public Meeting September 24, 2019

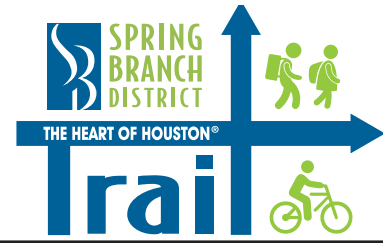
Attendees: (some did not sign the sign-in sheet but were in attendance)

- Chelsea Young, George Barrow - TEI
- Michael Robinson, Jieru He - SWA
- Bobby Martin - HCP4 Parks
- Lisa Graiff - Houston Parks Board
- Anita Hollmann, Clint McManus - HGAC
- Steve Ashy - Super Neighborhood Alliance
- Elizabeth Miranda, Ashley Roman - COH (Councilmember Stardig's office)
- Bowen Roberts - BikeHouston
- Aubin Pickens - METRO
- Lauren Grove - COH Planning
- Dave Durham - SB North Super Neighborhood
- Kristen Gonzales - SBMD
- Linda Buchman - SBISD (late arrival)

Minutes:

Chelsea presents project overview and trail segments walk through.

- Question from Steve - Who is coming to the 9/24 public meeting? A: Everyone is welcome; SBMD is promoting/advertising.
- Q from Bowen - Is project proposing improvements to the existing segment's trail surface? A: No. We could approach Pct. 4 about that -- what's out there now is what they're currently willing to maintain.
- Steve likes Northbrook to Blalock option 2 -- seems to have the least conflict with property owners.
- Clint: Northbrook to Blalock segment connects the existing trail to the soon-to-be-existing HPB segment, so is possibly the most important segment in the short term. Should the team provide more guidance for SBMD on how to pursue each proposed option? More in-depth implementation and pro/con list? CY agrees team should do this.
- Q from Bowen - What would happen if team can't build one segment? A (CY): The divided segments would still have value. A (Kristen): If property owners don't cooperate, then project will need more on-street segments, but the project will connect somehow.
- Q from Steve - Is 290 frontage road in HCP4? Could HCP4 be a partner for implementation costs? A (CY and Bobby): Not sure. Team will check and consider if HCP4 could be approached as a partner. After meeting Pct



Meeting Summary Steering Committee #4

(Continued - Page 2)

4 does encompass the 290 corridor within the study area for this trail study.

- Steve - SBMD has extraterritorial jurisdiction to spend money outside district that would benefit district - could use this to justify spending on 290 frontage road.

Michael presents landscaping, trailheads, bridge across White Oak Bayou.

- Q from Steve: Will there be a trail treatment to cross roads? A (CY and Michael): yes.
- Q from Dave: Were trailhead costs included in segment cost estimates in Chelsea's presentation? A (CY): No. TEI preliminary cost estimates included bridge cost but not trailheads.
- Q from Steve: Will HCFCD help team design/fund bridge over White Oak Bayou? A (Michael): No - HCFCD only has approval role. Design firm would design on behalf of SBMD
- Q from Bowen: Why not cross White Oak on 34th St? A (CY and Michael): Too narrow, not enough sidewalk space, would have to expand roadway bridge
- Q from Clint: How does this compare to new bridge at Mason Park? A (Michael): cost estimate for this bridge didn't consider Mason Park bridge specifically; it is instead based on previous bridges that SWA has recently designed. Size comparison to Mason Park bridge has not been done. The proposed bridge is not out of the ordinary when compared to other SWA bridges, in terms of size & cost.
- Q from Dave: For what weight is the bridge designed? A (Michael): Designed to carry maintenance vehicles.
- Q from Clint: Should team design a 34th St alternative crossing of White Oak Bayou as an interim solution, since bridge is likely to be a longer term project? A (CY): Yes.
- Q from Lisa: Overall project cost estimates includes just construction costs? Not design costs? A (CY): Yes. A more comprehensive estimate will be included in the report.
- Q from Bowen: Parking along trail? A (CY): Yes, team needs to look into that and consider in report. Lisa suggests using a partnership approach (talking to owners of existing lots along trail about permission to use for trail). This seems appealing to the room.
- Q from Lauren: How was feedback at the last public meeting? A (CY): Positive except for one vocal opponent.
- Q from Bowen: Is there a centerline on the trail in the current proposal? A (CY): No. Team will run a cost estimate for it. Steve doesn't think that the centerline is worth the trouble. Bowen disagrees.

Chelsea shows regional connections, and discusses the upcoming meetings.

Note that the 5th and 6th steering committee meetings will be combined and held in October. That meeting will feature the presentation of a draft final report.

Attachments:

- Agenda
- Sign-in Sheet



Steering Committee #4 August 21, 2019 | 9:30 AM

Spring Branch Management District: 9610 Long Point Road, Suite 130, Houston, TX 77055

Agenda

1. Welcome and Recap
2. Segmented Trail Corridor
3. Renderings and Cost Estimates
4. Discuss Phased Implementation
5. **Public Meeting - September 24, 2019**
6 PM - 9 PM (Presentation @ 7 PM)
The Branch 7710 Long Point Rd, Houston, TX 77055



Spring Branch Trail
Steering Committee Meeting #4
 August 21, 2019

Sign-In Sheet:

Name	Organization	Email
Bobby Martin (Brian)	HCP4 Parks	
Aubin Pickens	METRO	
Lauren Grove	COH Planning	
Clint McManus	H-GAC	
STEVE ASHY	SNA	
Fitch Miranda	COH	
Ashley Roman	COH	
Bowen Roberts	BikeHouston	
Anita Hollmann	H-GAC	
Dave Durham	SB North Superneighborhood	



Meeting Summary
Steering Committee #5

The Spring Branch Trail Study's second Steering Committee meeting was held Wednesday, October 23, 2019 from 9:30 AM to 11:00 AM at the Spring Branch Management District's office.

The agenda for the meeting was as follows:

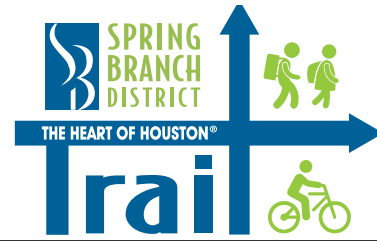
- Welcome
- Public Meeting Recap
- Draft Report Overview and Timeline
- Implementation Workbook
- Communication for Draft Report Feedback

Attendees: (some did not sign the sign-in sheet but were in attendance)

- Chelsea Young, Eleni Pappas, George Barrow - TEI
- Michael Robinson - SWA
- Lisa Graiff - Houston Parks Board
- Anita Hollmann, Allie Isbell - HGAC
- Ana Ramirez, Qing Li - TXDOT
- Steve Ashy - Super Neighborhood Alliance
- Bowen Roberts - BikeHouston
- Aubin Pickens - METRO
- Lauren Grove - COH Planning
- Jonathan Brooks - LINK Houston

Minutes:

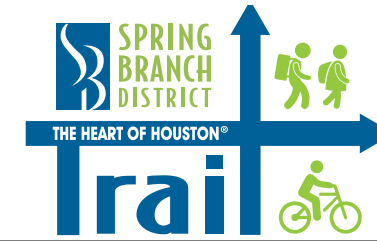
- Q (SNA): Do implementation tiers 2 and 3 correspond only to segments outside SBMD?
- A (CY): No, tier 2 segments are inside SBMD but are knocked down a tier due to complexity.
- Q (LINK): Is the extra length in the full chapter more text?
- A (CY): No, it's more maps
- Q (Ana): Can tiers change because management districts provide input? Has SBMD provided input on the tiers?
- A (CY): Not yet, but they will for the final report.
- Chelsea and Lauren agree to meet to discuss maintenance for on-street trail segments.
- Q (SNA): For areas inside SBMD, will SBMD be paying for maintenance?
- A (Lisa): Probably. They're paying for segment 1 maintenance. (Chelsea): We're just outlining costs - anybody can pay for the maintenance - depends on who is the implementing party
- Q (Anita): What's mobilization?
- A (Eleni): Cost to begin construction.
- Q (Ana): When you're not doing wildflowers at all, should the cost show n/a for that category instead of 0? Confusing as it is.
- A (CY): Sure
- Q (Bowen): Can we mark trailhead priorities for the draft on Friday?
- A (Eleni): Yes.



Meeting Summary Steering Committee #5

(Continued - Page 2)

- Q (Ana): Are enhanced trailheads high priority and basic trailheads low?
- A (Michael): No – basic/enhanced corresponds to the type of ROW it's on – that determines what can be built there.
- Q (LINK): Will there be a page summarizing restrictions based on ROW owner?
- A (Chelsea): Yes, we will add.
- Comment (Anita): We should refer readers of these summary pages to the definitions in the toolbox section; implementers won't know that those exist unless you reference them.
- A (Chelsea): Yes, we will add.
- Q (Bowen): Did anyone at the public meeting ask about restrooms along the trail?
- A (Chelsea): No, but it will probably come up later as the trail gets closer to implementation.
- Q (Ana): Should segment 2 be changed to tier 3 priority because it requires coordination with other entities? (referring to the portion outside SBMD)
- A (CY and EP): No, it's mostly SBMD, so it shouldn't require much coordination and is easily championed.
- Q (CY): What does METRO think about Hammerly?
- A (METRO): Consult the updated design standards for bus stops with bikeways. Hopefully those will be officially adopted by the time of trail implementation.
- Q (Lisa): Can summary page include existing conditions map?
- A (CY): Agree, it can.
- Q (Bowen): Can advertising on the trail be exchanged for parking permissions?
- A (CY): Maybe; we will consider.
- Q (METRO): Discounts at bike-friendly businesses along the trail?
- A (CY): Maybe; we will consider.
- Q (Lauren): Staff was confused at the meanings of the orange and green in the map renders. Could this be clarified?
- A (CY): Yes, we can make the legends more prominent.
- Q (Ana): Can toolbox items be defined on the summary pages?
- A (CY): We will refer readers to the toolbox section, where there will be definitions.
- Suggestion (Ana): For segment 4, should add parcel acquisition to the summary of costs. Perhaps include HCAD parcel number of the property that would need to be acquired? Or specify that it is only one parcel that needs to be acquired?
- A (EP): Agree with adding parcel acquisition to cost summary. We will be leaving out specifics on the parcel acquisition in the interest of privacy for the property owner.
- Suggestion (Anita): Median trail (referring to Blalock) requires an ordinance change, this should be outlined to assist with implementation.
- A (CY): We will discuss with Lauren how to best outline this process in the report.
- Q (Eleni): Should we renumber the segment 4 options so as not to suggest preference?
- A (general): Yes.
- A (Anita): Could rename the options with characteristics of each: school option, median option, acquisition option... etc (EP and CY agree with this approach)
- Suggestion (Anita): Do counts before/after each segment construction to show growth and justify other segments. Challenging for segments where nothing exists today.
- A (LINK): Maybe count at nearby intersections?



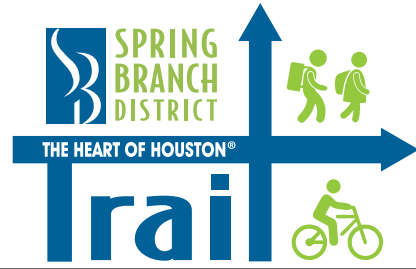
Meeting Summary Steering Committee #5

(Continued - Page 3)

- A (EP): Maybe perform an initial count right after completion and then one 1 year post completion to reflect growth?
- Suggestion (LINK): TXDOT is updating their ped/bike design standards – can incorporate into report
- A (EP): Yes, we have seen them, can incorporate.
- Suggestion (LINK): Call out the cost of midblock crossings and the fact that it's an included cost critical to success of the trail.
- A (general): Yes, should do this. Cost is already wrapped into the overall construction cost of each segment but it can be made more clear to highlight its importance.
- Q (Anita): Is the 34th St bridge due for reconstruction soon? New city standards would mean it is reconstructed with 10' sidewalks.
- A (EP): We think it is not but will check again.
- Chelsea and Lauren agree to meet to discuss an implementation workbook for regional connections.
- Q (Bowen): Can the implementation workbook include an overall map with segment tiers?
- A (EP): Yes, will include.

Attachments:

- Agenda
- Sign-in Sheet
- Sample Implementation Workbook (large file not included in this summary)



Steering Committee #5

October 23, 2019 | 9:30 AM

Spring Branch Management District: 9610 Long Point Road, Suite 130, Houston, TX 77055

Agenda

1. Welcome
2. Public Meeting Recap
3. Draft Report Overview and Timeline
4. Implementation Workbooks - Review/Provide Input
5. Communication for Draft Report Edits/Feedback



Spring Branch Trail
Steering Committee Meeting #5
October 23, 2019

Sign-In Sheet:

Name	Organization	Email
Bowen Roberts	Bike Houston	
Jonathan Bredes	LINK Houston	
Aubin Pickens	METRO	
Cira Ramirez	TxDOT	
Anita Idkman	H-67C	
Michael Robinson	SWA	
Isa Gratt	Houston Parks Board	
Luyen Grove	City of Houston	
Qing Li	Tx DOT	
Allie Ispell	HGAC	

APPENDIX C

MAP.SOCIAL

Feature Report of Spring Branch Trail Study

















Report Generated at: 2019-11-07

Project Start Date: 2019-2-08
Report Period: 2019-03-01 -- 2019-06-01
Location: Houston
Project Description:
Project Website: <https://map.social/Community.php?CommunityID=167>
Maps: 43
Features: 220
Users: 41

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Desired Route	Line	Neighborhood Loop	Neighborhood Loop	29.80202	-95.50979	8939 Long Point Dr, Houston, Texas, 77055	3	0				2019-03-13	2019-03-13
	Desired Route	Line	Bayou Walk	Walk along bayou	29.80055	-95.51043	1734-1798 Cornelius Trace Loop, Houston, Texas, 77055	5	0				2019-03-13	2019-03-13
	Barrier	Point	Access to trail from road	Currently the trail ends in the grass and doesn't have access to the road around Northbrook	29.81631	-95.53341	1-27 Raider Cir W, Houston, Texas, 77080	0	0				2019-04-07	2019-04-07
	Destinations	Point	Future Torchy's, Mia's, Kirby Ice House	Future Metro.National development in 2020	29.78700	-95.54554	Mathewson Ln, Houston, Texas, 77055	10	0				2019-04-07	2019-04-07
	Destinations	Point	Haden Park	Especially with future improvements, this will be a bike destination	29.79477	-95.53980	9992 Long Point Rd, Houston, Texas, 77055	7	0				2019-04-07	2019-04-07
	Destinations	Point	Nob Hill Park	Great park!	29.80259	-95.55059	10212-10218 Timberoak Dr, Houston, Texas, 77043	8	0				2019-04-07	2019-04-07
	Barrier	Point	New Landrum development project	How will the proposed trail tie in to the upcoming rebuilding project at Landrum Middle School / Schwartz park	29.81642	-95.49219	Spring Branch East, Houston, Texas	0	0				2019-04-07	2019-04-07
	Destinations	Point	My neighborhood	My routes start from here and need to cross gessner or hammerly safely	29.81010	-95.53886	9801-9899 Moorberry Ln, Houston, Texas, 77080	2	0				2019-04-07	2019-04-07
	Barrier	Point	Crossing near Campbell / Hammerly / Blalock	Dangerous, busy, lots of intersections in one spot. No sidewalks on the little Campbell cut through	29.80964	-95.52490	2019 Blalock Rd, Houston, Texas, 77080	5	0				2019-04-07	2019-04-07
	Destinations	Point	Cobble and Spoke	Bike friendly craft beer bar.	29.80752	-95.52318	9438 Campbell Rd, Houston, Texas, 77080	10	1				2019-04-07	2019-04-07
	Desired Route	Line	To cobble and spoke	Crossing through from teague to Neuens currently doesn't connect	29.80752	-95.53226	1901-2099 Parana Dr, Houston, Texas, 77080	0	0				2019-04-07	2019-04-07
	Desired Route	Line	To Haden Park	Crossing from Teague to neuens doesn't exist	29.80235	-95.54033	1627 Witte Rd, Houston, Texas, 77080	1	0				2019-04-07	2019-04-07
	Desired Route	Line	To Nob Hill	To the park, crossing gessner	29.80629	-95.54667	10226 Neuens Rd, Houston, Texas, 77043	1	0				2019-04-07	2019-04-07
	Desired Route	Line	To Landrum	Biking to work, mostly on proposed center point trail	29.81506	-95.51513	9010 Carousel Ln, Houston, Texas, 77080	3	0				2019-04-07	2019-04-07
	Barrier	Point	Crossing Gessner at Center point trail	A bridge over the road would be awesome, otherwise it will need to be a dedicated crossing signal and light	29.81605	-95.54501	2446-2500 Gessner Rd, Houston, Texas, 77080	7	0				2019-04-07	2019-04-07
	Destinations	Point	HCPL Library	Library and Hedwig Park	29.78098	-95.51301	9075 Gaylord St, Houston, Texas, 77024	6	0				2019-04-23	2019-04-23
	Destinations	Point	SV park	Spring Valley park	29.78791	-95.51410	1025-1121 Campbell Rd, Houston, Texas, 77055	5	0				2019-04-23	2019-04-23
	Destinations	Point	Valley Oaks	school	29.79543	-95.49385	1401-1439 Hillendahl Blvd, Houston, Texas, 77055	3	0				2019-04-23	2019-04-23
	Destinations	Point	park	park	29.79568	-95.49741	1445 Moritz Dr, Houston, Texas, 77055	3	0				2019-04-23	2019-04-23
	Barrier	Point	Crosswalk Needed	Busy intersection.	29.81634	-95.50091	2315-2399 Bingle Rd, Houston, Texas, 77055	7	0				2019-03-05	2019-03-05
	Barrier	Point	Needs speed bumps	Access to school will require cars along street to slow down	29.81539	-95.50567	8662 Emnora Ln, Houston, Texas, 77080	6	1				2019-03-05	2019-03-05
	Destinations	Point	Cobble and Spoke Bar	Awesome bar that requires access	29.80755	-95.52383	Newspring	16	0				2019-03-05	2019-03-05

names covered for privacy











Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Destinations	Point	Simply Greek	Delicious food requiring trail access	29.80751	-95.52329	9438 Campbell Rd, Houston, Texas, 77080	13	0				2019-03-05	2019-03-05
	Destinations	Point	4J brewing company	outdoor brewery with limited parking, company actually encourages biking and taking uber	29.79427	-95.52410	1300-1424 Cedar Post Ln, Houston, Texas, 77055	31	0				2019-03-05	2019-03-05
	Barrier	Point	Emnora & Bingle Traffic Signal	Traffic Signal needed. We see accidents and near accidents often at the Bingle Rd. and Emnora Intersection. Traffic backs up with vehicles trying to make a left turn from Emnora onto Bingle.	29.81513	-95.50083	Emnora Ln, Houston, Texas, 77055	4	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps and No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.82078	-95.50573	2801-2899 Soway St, Houston, Texas, 77080	3	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps & No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.81947	-95.49981	8500-8548 McDade St, Houston, Texas, 77080	2	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps and No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.81885	-95.50022	8501-8599 Friendship Rd, Houston, Texas, 77080	2	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps and No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.81820	-95.50056	8501-8599 Norton Dr, Houston, Texas, 77080	2	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps and No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.81752	-95.50083	8501-8599 Alcott Dr, Houston, Texas, 77080	3	1				2019-05-19	2019-05-19
	Barrier	Point	Speed Bumps and No Through Traffic Signs	Vehicles driving fast through Langwood 2 in effort to avoid traffic signal at Bingle and Kempwood.	29.81682	-95.50097	8500-8598 Kempridge St, Houston, Texas, 77080	2	1				2019-05-19	2019-05-19
	Desired Route	Line	Access from Ojeman Rd.	Access from Langwood 2 via Ojeman Rd.	29.81645	-95.50281	8603 Kempridge St, Houston, Texas, 77080	0	0				2019-05-30	2019-05-30
	Desired Route	Line	Access from Emnora Ln. & Ojeman Rd.	Access along property line of Kolbe Farms and Tarantino Properties connecting trail with Emnora Lane & Ojeman Rd. Gives access to Cedar Brook Elementary School from trail and Langwood 2 subdivision.	29.81588	-95.50232	8602 Emnora Ln, Houston, Texas, 77080	0	0				2019-05-30	2019-05-30
	Desired Route	Line	Spring Branch	Walk and Bike Trail	29.81680	-95.55418	2519 Shadowdale Dr, Houston, Texas, 77043	2	0				2019-05-24	2019-05-24
	Destinations	Point	Northbrook High School	trail provides direct access to Northbrook HS	29.81666	-95.53142	9668-9672 Alcott Dr, Houston, Texas, 77080	6	4				2019-03-04	2019-03-04
	Barrier	Point	railroad crossing - barrier	this could be a problem	29.81889	-95.48370	11650 Hempstead Rd, Houston, Texas, 77092	7	0				2019-03-04	2019-03-04





















names covered for privacy

	Destinations	Point	HEB	Could be good to walk/bike to the grocery store	29.82148	-95.54736	Spring Shadows, Houston, Texas	7	0		2019-03-14	2019-03-14
	Barrier	Point	Path along frontage could be scary	It may not be very comfortable to have a sidepath along a frontage road	29.81458	-95.56325	2300-2398 W Sam Houston Pkwy N, Houston, Texas, 77043	3	0		2019-03-18	2019-03-18
	Barrier	Point	Crossing at Gessner	Mid-block crossing at Gessner to get to the other side of the trail could be unsafe especially with a signalized intersection so close.	29.81598	-95.54526	Gessner Rd, Houston, Texas, 77080	1	0		2019-03-18	2019-03-18
	Barrier	Point	CenterPoint Substation	Navigating the trail around this sub-station will be tricky/a barrier.	29.81822	-95.52489	Spring Branch Central, Houston, Texas	2	0		2019-03-18	2019-03-18
	Barrier	Point	Safe Crossing Needed	Crossing this street from trail to the school could be unsafe without providing safe crosswalk and signage	29.81873	-95.52298	Blalock Rd, Houston, Texas, 77080	1	0		2019-03-18	2019-03-18
	Barrier	Point	Need safe crossing	Need to address safety and safe crossing where trail would be bisected by Bingle Road	29.81636	-95.50092	2315-2399 Bingle Rd, Houston, Texas, 77055	3	0		2019-03-18	2019-03-18
	Barrier	Point	Wirt at 34th Safety concern	Signage and safety features need to be identified to allow for cyclists or walkers safely across this intersection	29.81681	-95.48538	2401-2499 Wirt Rd, Houston, Texas, 77055	2	0		2019-03-18	2019-03-18
	Barrier	Point	290 Frontage Safety Concern	Will need to figure out a way to safely get people walking/biking across the frontage road and under 290	29.81927	-95.46906	11085-11199 Northwest Fwy, Houston, Texas, 77092	1	0		2019-03-18	2019-03-18
	Barrier	Point	Sidepath along Frontage Road could be scary	This may not be the most comfortable place to walk or bike directly adjacent to a major highway's frontage road.	29.81773	-95.46595	11020 Northwest Fwy, Houston, Texas, 77092	1	0		2019-03-18	2019-03-18
	Barrier	Point	Need safe crossing	To continue trail across Mangum, would need crosswalk, signage, and other safety features.	29.81543	-95.45931	Mangum Rd, Houston, Texas, 77092	1	0		2019-03-18	2019-03-18
	Barrier	Point	crossing White Oak Bayou - barrier	This will need a bridge to cross this barrier to get to the existing trail	29.81561	-95.44444	2900-2998 W T C Jester Blvd, Houston, Texas, 77018	2	0		2019-03-18	2019-03-18
	Barrier	Point	Safety concern - crossing BW 8	Safety treatments will be needed to safely cross frontage road, under BW 8 to get to the other side	29.81290	-95.56334	W Sam Houston Pkwy N, Houston, Texas, 77043	2	0		2019-03-18	2019-03-18

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Barrier	Point	Safety Concern Crossing BW 8	Safety treatments will be needed to safely cross frontage road, under BW 8 to get to the other side	29.81286	-95.56409	W Sam Houston Pkwy N, Houston, Texas, 77043	2	0				2019-03-18	2019-03-18
	Barrier	Point	Crossing under I-10 barrier	If bike lanes and/or trails are to cross under I-10, multiple safety measures will need to be explored.	29.78510	-95.54408	Gessner Dr, Houston, Texas, 77055	5	0				2019-03-18	2019-03-18
	Desired Route	Line	Alternative path - no BW8 Frontage Road	Could have a route from CenterPoint trail, through the neighborhood, down an easement adjacent to school to reach Hammerly	29.81512	-95.55852	10516-10598 Emnora Ln, Houston, Texas, 77043	0	0				2019-03-18	2019-03-18
	Desired Route	Line	Get to Addicks Trail faster	Instead of using CenterPoint easement, could look at meeting up with Dam and extend existing trail north	29.80601	-95.57755	77043, Houston, Texas	0	0				2019-03-18	2019-03-18
	Desired Route	Line	Instead of 290 frontage	Sidepath/bike lane could go along W 34th and down to meet up with the CenterPoint easement	29.81750	-95.46349	Inkberry Dr, Houston, Texas, 77092	1	0				2019-03-18	2019-03-18
	Destinations	Point	St. Jerome Catholic Church	Church	29.82040	-95.51026	2949-2975 Hollister St, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Destinations	Point	St. Jerome Scout House	Scouts could use trail for bike ride outings	29.81937	-95.51150	8800-8998 Friendship Rd, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Barrier	Point	Hollister between Kempwood and Emnora	Road a busy cut-through to get to Bingle. Traffic moves VERY quickly.	29.81816	-95.50952	2516 Hollister St, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Barrier	Point	Bus Entrance to Edgewood Elementary	Busses are frequent during school start and end times. School bus entrance very close to proposed path. Buses turn wide as driveway/Hollister not sufficient for normal turns. Maybe need SBISD crossing guard here during school times.	29.81856	-95.50954	2500-2598 Hollister St, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Barrier	Point	Kolbe Farms subdivision road?	Looks like there is a road here/access to join two areas of Kolbe Farms, but it is a gated community. How will this work?	29.81823	-95.50705	2509-2899 Lake Kolbe Ln, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Destinations	Point	Houston Public Library Ring Branch	Families and community members visit.	29.80273	-95.50755	8831 Long Point Dr, Houston, Texas, 77055	2	0				2019-05-31	2019-05-31
	Destinations	Point	Houston Public Library Hillendahl Branch	Families and community members visit	29.81566	-95.54482	2436 Gessner Rd, Houston, Texas, 77080	1	0				2019-05-31	2019-05-31
	Destinations	Point	Food Pantry	Associated with St. Jerome but separate building	29.82043	-95.51101	8825 Kempwood Dr, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Barrier	Point	Significant Church Traffic on Hollister	There is significant church traffic in this area on Sundays, on Fridays during Lent (fish fry), and during the fall festival.	29.82065	-95.50949	Hollister St, Houston, Texas, 77080	2	0				2019-05-31	2019-05-31
	Destinations	Point	Shopping Area/ Food Trucks	Lots of pedestrian, bike, and vehicular traffic to shopping areas/ laundromat/food trucks on corners at this intersection.	29.82188	-95.52247	9301-9399 Kempwood Dr, Houston, Texas, 77080	1	0				2019-05-31	2019-05-31

names covered for privacy

	Destinations	Point	Park, City Pool, Basketball Court, Disc Golf	Families. Has major potential to become a civic destination.	29.81142	-95.56170	Agnes Moffit Park	1	0		2019-05-31	2019-05-31
	Barrier	Point	Dangerous Crossing	People consistently run the lights here.	29.81287	-95.56365	Sam Houston Hwy, Houston, Texas, 77043	0	0		2019-05-31	2019-05-31
	Barrier	Point	Dangerous Intersection	Intersection has a strange configuration and with a sharp jog; north south traffic does not stop but east west does. Visibility to north south from east is difficult.	29.79911	-95.57951	11300-11398 Chatterton Dr, Houston, Texas, 77043	1	0		2019-05-31	2019-05-31
	Barrier	Point	Significant carpool traffic.	School is older and carpool is insufficient, creating a lot of vehicular traffic at school times. Consider different route through neighborhood to avoid Chatterton. Maybe use Sherwood to come south,	29.79913	-95.57803	11100-11198 Chatterton Dr, Houston, Texas, 77043	1	0		2019-05-31	2019-05-31
	Barrier	Point	Very Deep Ditches/ Sidewalks Narrow & Close to Road	Feels dangerous when using these. Hard for kids to navigate on bikes between road and deep open ditches.	29.81841	-95.50952	2516 Hollister St, Houston, Texas, 77080	2	0		2019-05-31	2019-05-31
	Barrier	Point	290	?? Biking along 290??? Have you ever done that? I hope you will be adding a dedicated bike lane that is barricaded from the dangerous traffic	29.81848	-95.46713	US-290 W, Houston, Texas, 77092	1	0		2019-03-21	2019-03-21
	Destinations	Point	Retail	Lots of retail at Gessner/ Hammerly - can you connect to develop a destination for eating/ shopping?	29.81268	-95.54532	Verizon	7	0		2019-03-21	2019-03-21
	Barrier	Point	Beltway	Can you create a dedicated bike lane with a barrier from the traffic? Cars won't respect a bike lane that is just painted.	29.81528	-95.56369	Sam Houston Hwy, Houston, Texas, 77043	4	0		2019-03-21	2019-03-21
	Desired Route	Line	Sidewalk to Henry Froehner Park	Sidewalk along West side of Bracher is required to safely allow young families that walk to Henry Froehner Park from the North.	29.80033	-95.50740	1701 Cranway Dr, Houston, Texas, 77055	1	0		2019-07-29	2019-07-29
	Destinations	Point	Schwartz Park	Local park with swimming pool	29.81443	-95.49258	Spring Branch East, Houston, Texas	4	0		2019-04-13	2019-04-13

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Destinations	Point	Other Park	Park with walking trail and playground	29.81400	-95.50342	8655 Emnora Ln, Houston, Texas, 77080	7	0				2019-04-13	2019-04-13
	Desired Route	Line	Bike to Schwartz park	Bike to park	29.81655	-95.49855	2201-2299 Marnel Rd, Houston, Texas, 77055	0	0				2019-04-13	2019-04-13
	Desired Route	Line	Central Route to NWTC	Central Route to NWTC	29.80249	-95.48143	7709 Long Point Rd, Houston, Texas, 77055	2	0				2019-03-11	2019-03-11
	Bike Friendly Area	Polygon	Bike Area at new shopping	Bike Area at new shopping	29.80274	-95.49358	8303 Long Point Rd, Houston, Texas, 77055	0	0				2019-03-11	2019-03-11
	Destinations	Point	Kroger	Kroger	29.79572	-95.48574	1415-1499 Wirt Rd, Houston, Texas, 77055	11	0				2019-03-11	2019-03-11
	Destinations	Point	Gym	Gym	29.82249	-95.54488	Chevron	6	0				2019-03-11	2019-03-11
	Destinations	Point	Shopping Center	Shopping Center	29.80775	-95.52322	1913 Hoskins Dr, Houston, Texas, 77080	5	0				2019-03-11	2019-03-11
	Destinations	Point	HEB	HEB	29.78752	-95.53220	1109-1115 Bunker Hill Rd, Houston, Texas, 77055	12	0				2019-03-11	2019-03-11
	Destinations	Point	Spring Valley Park	Spring Valley Park	29.78780	-95.51452	Campbell Rd, Houston, Texas, 77055	15	0				2019-03-11	2019-03-11
	Destinations	Point	Shopping Center	Shopping Center	29.78560	-95.51326	Peli Peli Kitchen	9	0				2019-03-11	2019-03-11
	Destinations	Point	Shopping Center	Shopping Center	29.78582	-95.49358	Home Depot	1	0				2019-03-11	2019-03-11
	Destinations	Point	Shopping Center	Shopping Center	29.78500	-95.48348	1014 Wirt Rd, Houston, Texas, 77055	1	0				2019-03-11	2019-03-11
	Destinations	Point	New Park	New Park	29.79485	-95.53903	9926-9998 Long Point Rd, Houston, Texas, 77055	15	0				2019-03-11	2019-03-11
	Destinations	Point	Bingle Shopping Center	Bingle Shopping Center	29.80471	-95.50148	1841 Bingle Rd, Houston, Texas, 77055	6	0				2019-03-11	2019-03-11
	Destinations	Point	Memorial City Mall	Memorial City Mall	29.78140	-95.54116	Memorial City Mall	12	0				2019-03-11	2019-03-11
	Destinations	Point	Park	Park	29.81127	-95.56002	Agnes Moffit Park	10	0				2019-03-11	2019-03-11
	Destinations	Point	Park	Park	29.80929	-95.53407	Hammerly Blvd, Houston, Texas, 77080	11	0				2019-03-11	2019-03-11
	Destinations	Point	Park	Park	29.82865	-95.51543	3901-3999 Aruba Dr, Houston, Texas, 77080	4	0				2019-03-11	2019-03-11
	Desired Route	Line	Campbell Trail	Campbell Trail	29.79249	-95.51388	9023 Lupton Ct, Houston, Texas, 77055	2	0				2019-03-11	2019-03-11
	Desired Route	Line	Bunker Hill Trail	Bunker Hill Trail	29.79102	-95.53241	Cedardale Dr, Houston, Texas, 77055	0	0				2019-03-11	2019-03-11

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	Desired Route	Line	Home Depot Trail	Home Depot Trail	29.78621	-95.49691	8560 Katy Fwy, Houston, Texas, 77024	0	0		2019-03-11	2019-03-11
	Destinations	Point	Marquee	Marquee	29.78571	-95.46526	Dave & Buster's	4	0		2019-03-11	2019-03-11
	Desired Route	Line	Marquee Trail	Marquee Trail	29.79030	-95.46808	1113-1299 Silber Rd, Houston, Texas, 77055	0	0		2019-03-11	2019-03-11
	Bike Friendly Area	Polygon	Marquee Bike Station	Marquee Bike Station	29.78652	-95.46769	1034-1048 Silber Rd, Houston, Texas, 77055	0	0		2019-03-11	2019-03-11
	Destinations	Point	Park	Park	29.81475	-95.50326	8621-8723 Emnora Ln, Houston, Texas, 77080	10	0		2019-03-11	2019-03-11
	Destinations	Point	New park	More child friendly	29.79541	-95.53901	1401-1421 Murray Bay St, Houston, Texas, 77080	4	0		2019-04-27	2019-04-27
	Desired Route	Line	Wider path to Haden park	Safer transportation	29.79327	-95.53559	1382 Bullock Ln, Houston, Texas, 77055	0	0		2019-04-27	2019-04-27
	Desired Route	Line	Connect Westview north	More pleasant path	29.80521	-95.52972	1733 Elmview Dr, Houston, Texas, 77080	0	0		2019-04-27	2019-04-27
	Desired Route	Line	Spring Valley Village Park	Route to park	29.79505	-95.50501	1417 Bracher St, Houston, Texas, 77055	1	0		2019-03-06	2019-03-06
	Desired Route	Line	Neighborhood trail	Walking around the neighborhood	29.79886	-95.49513	8335 Waterbury Dr, Houston, Texas, 77055	2	0		2019-03-06	2019-03-06
	Barrier	Point	Buffalo Creek	Need to access Buffalo Cree Elementary School from both directions	29.81878	-95.52593	2710 Campbell Rd, Houston, Texas, 77080	7	0		2019-03-05	2019-03-05
	Destinations	Point	Agnes Moffitt Park	Park planned to be improved. Would be good to have safe route connection to Spring Branch Trail.	29.81096	-95.56061	Agnes Moffitt Park	11	0		2019-03-05	2019-03-05
	Destinations	Point	Planet Fitness	Access to PF without having to bike down Gessner or past dangerous areas	29.81316	-95.54276	10106-10114 Hammerly Blvd, Houston, Texas, 77080	6	0		2019-03-08	2019-03-08

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Bike Friendly Area	Polygon	Spring Branch West Neighborhood Bike Corridor	Provides connections to current and future destinations: parks, Lazy Oaks Beer Garden, schools, Centerpoint Trail, "Shadowdale Boulevard" (covered drainage culvert; Heights Boulevard-like drive with bike/ped path in middle)	29.80409	-95.54598	1762 Maux Dr, Houston, Texas, 77043	5	0				2019-04-03	2019-04-03
	Destinations	Point	Roostar	Tasty Vietnamese banh mi + more	29.79564	-95.54516	1418 Maux Dr, Houston, Texas, 77043	7	0				2019-04-03	2019-04-03
	Destinations	Point	Shipley's	Donuts	29.80189	-95.54511	1649 Gessner Rd, Houston, Texas, 77080	5	0				2019-04-03	2019-04-03
	Desired Route	Line	Conrad Sauer-Long Point Pedestrian Corridor	Link Haden Park to Nob Hill Park with a pedestrian-friendly walkway	29.79825	-95.54331	1530 Gessner Rd, Houston, Texas, 77080	5	0				2019-04-03	2019-04-03
	Destinations	Point	Tostada Regia	Fast, authentic Mexican cuisine	29.79494	-95.54286	1401-1499 Southwick St, Houston, Texas, 77080	4	0				2019-04-03	2019-04-03
	Destinations	Point	Tres Amigos	Fresh baked goodness	29.79495	-95.54254	Mambo Seafood	6	0				2019-04-03	2019-04-03
	Destinations	Point	Sojubar	Awesome Korean cuisine	29.79414	-95.54380	Advance Auto Parts	6	0				2019-04-03	2019-04-03
	Destinations	Point	VCA	Veterinarian	29.79417	-95.54532	10109 Long Point Rd, Houston, Texas, 77043	7	0				2019-04-03	2019-04-03
	Destinations	Point	Jerry's Dry Cleaners	Great service, great hours, and friendly-staffed dry cleaner	29.80167	-95.54465	1636 Gessner Rd, Houston, Texas, 77080	6	0				2019-04-03	2019-04-03
	Desired Route	Line	Old Gas Line Trail #2	Connect neighborhoods with the old utility easement	29.80166	-95.55708	1663 Shadow Bend Dr, Houston, Texas, 77043	6	0				2019-04-03	2019-04-03
	Desired Route	Line	Old Gas Line Trail #1	Connect neighborhoods with the old utility easement	29.80316	-95.54538	1661 Gessner Rd, Houston, Texas, 77080	6	0				2019-04-03	2019-04-03
	Destinations	Point	Spring Branch Burger Shack	Burgers and soon to be joined by Simply Greek	29.79438	-95.53820	Hamgung Myunoak	10	0				2019-04-03	2019-04-03
	Bike Friendly Area	Polygon	Shadowdale Bike	East side only	29.79986	-95.55364	Shadowdale Dr, Houston, Texas, 77043	2	0				2019-03-06	2019-03-06
	Desired Route	Line	Walking or biking	Have a biking or walking path on this street. Right now there is only a sidewalk very close to the road and cars drive pretty fast down this way.	29.81067	-95.49256	8049 Hammerly Blvd, Houston, Texas, 77055	1	0				2019-03-06	2019-03-06
	Destinations	Point	Memorial Park	Park	29.76787	-95.43855	Memorial Park Municipal Golf Course	2	0				2019-03-09	2019-03-09
	Desired Route	Line	Spring Branch to Memorial Park	Spring to Memorial Park	29.77968	-95.46822	9302 Memorial Dr, Houston, Texas, 77024	2	0				2019-03-09	2019-03-09
	Desired Route	Line	Spring Branch Bayou Trail	Spring Branch Bayou Trail	29.80058	-95.52040	9330 Saddle Ln, Houston, Texas, 77080	4	0				2019-03-09	2019-03-09

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	Destinations	Point	Karbach Brewery	Bike Friendly Access to Brewery	29.80569	-95.46108	2032 Karbach St, Houston, Texas, 77092	4	0		2019-03-10	2019-03-10
	Destinations	Point	Kroger Shopping Center	Bike Friendly Access to Kroger and other businesses in shopping center	29.79577	-95.48565	1415-1499 Wirt Rd, Houston, Texas, 77055	0	0		2019-03-10	2019-03-10
	Destinations	Point	HEB shopping center	Bike friendly access to HEB and other businesses in shopping center	29.78739	-95.53221	1111 Bunker Hill Rd, Houston, Texas, 77055	4	0		2019-03-10	2019-03-10
	Destinations	Point	H Mart	Bike friendly access to H Mart	29.79255	-95.52097	Super H Mart	11	0		2019-03-10	2019-03-10
	Barrier	Point	Bike Lane too narrow	Current bike lane on Blalock is too narrow	29.79990	-95.52423	Blalock Rd, Houston, Texas, 77080	4	0		2019-03-10	2019-03-10
	Barrier	Point	Pedestrian crosswalk needed	Pedestrian crossing signs or lines needed	29.80392	-95.55366	10327 Raritan Dr, Houston, Texas, 77043	6	0		2019-03-10	2019-03-10
	Barrier	Point	Pedestrian Crosswalk signs needed	Pedestrian crosswalk signage needed	29.79964	-95.55349	10335 Chatterton Dr, Houston, Texas, 77043	7	0		2019-03-10	2019-03-10
	Destinations	Point	Spark park	bike access to park	29.79190	-95.55480	Shadow Oaks Elementary School	13	0		2019-03-10	2019-03-10
	Destinations	Point	Haden Park	Bike access to park	29.79536	-95.53915	1412-1424 Witte Rd, Houston, Texas, 77080	8	0		2019-03-10	2019-03-10
	Destinations	Point	New pub	New pub/drafthouse being built	29.79446	-95.54891	Drive in Shadow Oaks	20	0		2019-03-10	2019-03-10
	Desired Route	Line	Conrad Sauer Bike Lane	Bike Lane	29.79912	-95.54899	10166 Eddystone Dr, Houston, Texas, 77043	5	0		2019-03-10	2019-03-10
	Desired Route	Line	Long Point Bike Lane	Designated bike lane on Long Point to connect east and west spring branch	29.79821	-95.51417	1545 Campbell Rd, Houston, Texas, 77055	7	0		2019-03-10	2019-03-10
	Desired Route	Line	Hammerly Bike Lane	Designated bike lane on Hammerly to connect east and west spring branch	29.81085	-95.52337	Mid Love's Auto Repair	3	0		2019-03-10	2019-03-10
	Desired Route	Line	Westview Bike Lane	Designated bike lane on Westview to connect east and west Spring Branch	29.79273	-95.51211	1315 Beutel Dr, Houston, Texas, 77055	6	0		2019-03-10	2019-03-10
	Destinations	Point	New Business Development	Development of new shopping center at 8141 Long Point	29.80299	-95.49149	8146 Long Point Rd, Houston, Texas, 77055	11	0		2019-03-10	2019-03-10

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Destinations	Point	HCC	Houston Community College Bike access	29.78927	-95.56108	77043, Houston, Texas	10	0				2019-03-10	2019-03-10
	Bike Friendly Area	Polygon	bike friendly	would be nice if the two roads flanking ditch turned into one-way (but probably not for the people living immediately adjacent)	29.79823	-95.55384	1601-1607 Shadowdale Dr, Houston, Texas, 77043	4	0				2019-03-20	2019-03-20
	Destinations	Point	access point	safest way to access this trail from my home, i'd come up Shadowdale or Conrad Sauer.	29.81737	-95.55404	2527 Shadowdale Dr, Houston, Texas, 77043	4	0				2019-03-20	2019-03-20
	Barrier	Point	gessner not bike friendly // cross safety	gessner not bike friendly // cross safety	29.81618	-95.54532	2459 Gessner Rd, Houston, Texas, 77080	5	1				2019-03-20	2019-03-20
	Desired Route	Line	enhanced N/S to Westview for entering Heights	If commuting by bike to work, I would take westview, jog thru NW mall, then to office.	29.80579	-95.49589	1901-1999 Pech Rd, Houston, Texas, 77055	1	0				2019-03-20	2019-03-20
	Destinations	Point	Destination: 18th street development	shops/coffee/ice cream	29.80236	-95.40645	Menchie\'s Frozen Yogurt	1	0				2019-03-20	2019-03-20
	Destinations	Point	School / kid's ride to school	enhance connection from school to SB trail	29.79934	-95.49455	8323 Waterbury Dr, Houston, Texas, 77055	2	0				2019-03-20	2019-03-20
	Barrier	Point	10/barrier	no easy way to cross from n to s	29.78456	-95.54977	I-10-TOLL W, Houston, Texas, 77024	4	0				2019-03-20	2019-03-20
	Desired Route	Line	Neuens Access	It'd be great to connect Spring Woods Middle School to the trail. Accessing it through the large drainage ditch would be easy and no affect right of way.	29.81135	-95.53247	2314 Greyburn Ln, Houston, Texas, 77080	0	0				2019-04-06	2019-04-06
	Destinations	Point	Carolyn H. Wolff Park	Safe bike lane to park	29.83257	-95.55827	10924-11198 Clay Rd, Houston, Texas, 77041	1	0				2019-04-04	2019-04-04
	Destinations	Point	Buffalo Creek Elementary	take kids to school	29.81982	-95.52412	Buffalo Creek Elementary School	3	0				2019-03-20	2019-03-20
	Destinations	Point	entry from neighborhood	walking from neighborhood	29.81856	-95.51734	2704-2798 Tilson Ln, Houston, Texas, 77080	7	1				2019-03-20	2019-03-20
	Barrier	Point	traffic to cross Blalock	need to be able to cross safely; there is a small curve and people drive quickly	29.81863	-95.52301	Blalock Rd, Houston, Texas, 77080	7	0				2019-03-20	2019-03-20
	Desired Route	Line	an off-street walking option	an off-street walking option	29.81729	-95.50477	8639 Alcott Dr, Houston, Texas, 77080	1	0				2019-03-20	2019-03-20
	Barrier	Point	street crossing at Bingle	street crossing at Bingle	29.81637	-95.50112	Man\'s Best Friend	6	0				2019-03-20	2019-03-20
	Destinations	Point	Edgewood Elementary	school	29.81987	-95.50799	Spring Branch Central, Houston, Texas	4	0				2019-03-20	2019-03-20
	Barrier	Point	crossing at Hollister	can get backed up at rush hours	29.81841	-95.50950	2516 Hollister St, Houston, Texas, 77080	6	0				2019-03-20	2019-03-20
	Destinations	Point	Ring Library	HPL	29.80257	-95.50883	8845 Long Point Dr, Houston, Texas, 77055	9	0				2019-03-20	2019-03-20

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	Destinations	Point	Hillendahl Library	HPL	29.81606	-95.54489	2446-2500 Gessner Rd, Houston, Texas, 77080	3	0		2019-03-20	2019-03-20
	Destinations	Point	Northbrook HS	HS	29.81704	-95.53142	78-92 Raider Cir N, Houston, Texas, 77080	3	0		2019-03-20	2019-03-20
	Destinations	Point	Spring Woods HS	HS	29.81117	-95.54784	Spring Woods High School	5	0		2019-03-20	2019-03-20
	Desired Route	Line	Knoll St. Cut through	I would like to be able to cut through all the way down Knoll St.	29.81199	-95.50964	2101-2175 Hollister St, Houston, Texas, 77080	1	0		2019-04-03	2019-04-03
	Barrier	Point	Knoll St. dead end	Dead end doesn't allow walking or bike access through to Hollister	29.80873	-95.50968	1924-2098 Knoll St, Houston, Texas, 77080	4	0		2019-04-03	2019-04-03
	Bike Friendly Area	Polygon	Knoll St. Bike pass through to Hollister	Knoll St. bike pass through to Hollister	29.81180	-95.50970	2101-2175 Hollister St, Houston, Texas, 77080	2	0		2019-04-03	2019-04-03
	Desired Route	Line	Walking Trail	Walking Trail safe for People & Leash Controlled Pets	29.79908	-95.49013	1603 Monarch Oaks St, Houston, Texas, 77055	3	0		2019-04-17	2019-04-17
	Destinations	Point	memorial city mall	Access from Blalock	29.78348	-95.54747	10139 Katy Fwy, Houston, Texas, 77024	2	0		2019-05-07	2019-05-07
	Bike Friendly Area	Polygon	BIKER FRIENDLY PATHS	Create wide biking paths to mall and City Centre	29.79145	-95.53198	1251-1299 Bunker Hill Rd, Houston, Texas, 77055	2	0		2019-05-07	2019-05-07
	Desired Route	Line	walk and bike trail desired	walk and bike trail desired	29.81336	-95.46507	2523-2799 Central Pkwy, Houston, Texas, 77092	1	0		2019-04-11	2019-04-11
	Desired Route	Line	Walk and bike trail	Walk and bike trail	29.80194	-95.45574	4476-4548 W 18th St, Houston, Texas, 77092	1	0		2019-04-11	2019-04-11
	Destinations	Point	Home	Home	29.80708	-95.50645	1908-1908 Hollister St, Houston, Texas, 77080	1	0		2019-04-04	2019-04-04
	Barrier	Point	dangerous intersection	dangerous intersection	29.81547	-95.50950	2328 Hollister St, Houston, Texas, 77080	4	1		2019-04-04	2019-04-04
	Desired Route	Line	Possible Route	Possible Route	29.81161	-95.50383	8728-8742 Hammerly Blvd, Houston, Texas, 77080	0	0		2019-04-04	2019-04-04
	Desired Route	Line	Possible Route West	Possible Route West	29.81256	-95.50802	Spring Branch Central, Houston, Texas	1	0		2019-04-04	2019-04-04

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Destinations	Point	Trail Destination East	Trail Destination East	29.81629	-95.50104	Man's Best Friend	6	0				2019-04-04	2019-04-04
	Destinations	Point	Trail Destination West	Trail Destination West	29.81815	-95.50980	2501-2599 Hollister St, Houston, Texas, 77080	7	0				2019-04-04	2019-04-04
	Destinations	Point	YMCA	YMCA	29.83199	-95.55390	10623-10663 Clay Rd, Houston, Texas, 77041	3	0				2019-04-04	2019-04-04
	Destinations	Point	Slowpokes	Slowpokes	29.80256	-95.49017	Garay Automotive	5	0				2019-04-04	2019-04-04
	Destinations	Point	Karbach	Karbach	29.80573	-95.46103	2032 Karbach St, Houston, Texas, 77092	9	0				2019-04-04	2019-04-04
	Destinations	Point	TC Jester Trail	TC Jester Trail	29.81574	-95.44412	3351-3399 E T C Jester Blvd, Houston, Texas, 77018	7	0				2019-04-04	2019-04-04
	Barrier	Point	Crime	Crime	29.80999	-95.50661	2049-2099 Hollister St, Houston, Texas, 77080	0	2				2019-04-04	2019-04-04
	Barrier	Point	Crazy drivers	Crazy drivers	29.81119	-95.50945	2100-2174 Hollister St, Houston, Texas, 77080	0	2				2019-04-04	2019-04-04
	Barrier	Point	More terrible drivers	More terrible drivers	29.81342	-95.50945	2230-2256 Hollister St, Houston, Texas, 77080	1	2				2019-04-04	2019-04-04
	Barrier	Point	paper plate drivers	paper plate drivers	29.81554	-95.50096	Garcia Aurelio	0	5				2019-04-04	2019-04-04
	Destinations	Point	Kroger	Access to nearby grocery for everyday use is crucial	29.79669	-95.48647	1505 Wirt Rd, Houston, Texas, 77055	1	0				2019-06-01	2019-06-01
	Destinations	Point	Park / Dog Park	Easy access to this park. Getting over the bridge safely and securely for cars, pedestrians, and bikes without impeding the flow of traffic is a task that needs detailed attention.	29.79542	-95.49699	1401-1433 Moritz Dr, Houston, Texas, 77055	0	0				2019-06-01	2019-06-01
	Barrier	Point	Crossing Bridge challenge	Crossing this bridge needs to be easily for people riding / walking along westview. It gets narrow but you dont want to impede traffic flow.	29.79476	-95.49657	8420-8426 Westview Dr, Houston, Texas, 77055	2	0				2019-06-01	2019-06-01
	Barrier	Point	Electric area bike route	This path would be great for a trail. The area would need to be developed and surrounding neighborhoods be aware of the increment if potential traffic.	29.81805	-95.50931	2516 Hollister St, Houston, Texas, 77080	5	0				2019-04-22	2019-04-22
	Desired Route	Line	access to knob hill park	bike to park	29.80944	-95.54515	2028-2038 Gessner Rd, Houston, Texas, 77080	0	0				2019-04-08	2019-04-08
	Desired Route	Line	access to Freed Park	separated lane on major streets to get to freed park	29.80653	-95.47833	1950 Woodvine Dr, Houston, Texas, 77055	1	0				2019-04-08	2019-04-08
	Destinations	Point	knob hill park	park	29.80262	-95.55271	10320-10398 Timberoak Dr, Houston, Texas, 77042	9	0				2019-04-08	2019-04-08

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	Destinatio ns	Point	Freed Park park		29.79718	-95.47185	Freed Park	6	0		2019-04-08	2019-04-08
	Destinatio ns	Point	SBMSA softball fields	Spring Branch Elementary	29.80055	-95.51537	1700 Campbell Rd, Houston, Texas, 77080	5	0		2019-04-08	2019-04-08
	Destinatio ns	Point	Ring Library	HPL	29.80273	-95.50807	Ring Neighborhood Library	4	0		2019-04-08	2019-04-08
	Destinatio ns	Point	Emnora Heights	Please grant access directly to Emnora Heights Neighborhood	29.81806	-95.51823	9211 Norton Dr, Houston, Texas, 77080	1	0		2019-05-28	2019-05-28
	Desired Route	Line	Route to Westray trail	Route to Westray Trail	29.82688	-95.55705	3003 Quincannon Ln, Houston, Texas, 77043	1	0		2019-03-20	2019-03-20
	Destinatio ns	Point	Clay Road YMCA	Clay Road YMCA	29.83159	-95.55451	10655 Clay Rd, Houston, Texas, 77041	4	0		2019-03-20	2019-03-20
	Destinatio ns	Point	White Oak Bayou Trail	to be able to bike commute to work	29.81562	-95.44464	2900-2998 W T C Jester Blvd, Houston, Texas, 77018	13	0		2019-03-06	2019-03-06
	Destinatio ns	Point	Addicks Reservoir	To be able to bike commute to the energy corridor	29.79912	-95.58073	11300-11398 Chatterton Dr, Houston, Texas, 77043	8	1		2019-03-06	2019-03-06
	Destinatio ns	Point	YMCA	To be able to ride to the YMCA to workout	29.83150	-95.55387	10655 Clay Rd, Houston, Texas, 77041	7	0		2019-03-06	2019-03-06
	Destinatio ns	Point	Spring Woods High School	So my kids can ride to the high school	29.81113	-95.54754	Spring Woods High School	10	0		2019-03-06	2019-03-06
	Destinatio ns	Point	Mendenhall Community Center	Ride to vote!	29.79528	-95.48431	1406 Wirt Rd, Houston, Texas, 77055	16	1		2019-03-06	2019-03-06
	Destinatio ns	Point	Agnes Moffit Park	Ride to play frisbee	29.81173	-95.56190	10669-10687 Hammerly Blvd, Houston, Texas, 77043	12	0		2019-03-06	2019-03-06
	Destinatio ns	Point	Knob Hill Park	Ride to play at the park	29.80302	-95.55168	Nob Hill Park Trail	23	0		2019-03-06	2019-03-06
	Destinatio ns	Point	Memorial Park	A safe way to ride to memorial park	29.76802	-95.44758	Memorial Dr, Houston, Texas, 77007	4	0		2019-03-06	2019-03-06

Legend Image	Legend Name	Feature Type	Title	Description	Latitude	Longitude	Address	Thumb Up	Thumb Down	Link	Photo	Creator	Last Modified	Created Date
	Destinations	Point	Bear Creek Park	Ride to the park	29.81308	-95.61701	N Eldridge Pkwy, Houston, Texas, 77084	7	0				2019-03-06	2019-03-06
	Destinations	Point	Dairy Queen	For Ice Cream	29.81609	-95.52658	2401 Campbell Rd, Houston, Texas, 77080	9	2				2019-03-06	2019-03-06
	Destinations	Point	Terrace Elementary	Kids to ride to school	29.81917	-95.55049	10416-10430 Rothbury St, Houston, Texas, 77043	8	0				2019-03-06	2019-03-06
	Destinations	Point	Juarez Mexican Restaurant	For margaritas	29.81861	-95.54553	Chavez Mexican Cafe	7	1				2019-03-06	2019-03-06
	Destinations	Point	Bar & Restaurant	Bar & Restaurant	29.80741	-95.52393	Newspring	9	0				2019-03-29	2019-03-29
	Destinations	Point	Campbell Road Sports Park	Soccer park	29.82906	-95.52712	3801-4099 Campbell Rd, Houston, Texas, 77080	1	0				2019-03-29	2019-03-29
	Destinations	Point	Park	park	29.79551	-95.53966	1426-1442 Witte Rd, Houston, Texas, 77080	8	0				2019-03-29	2019-03-29
	Desired Route	Line	Walking/Bike Path	Wide Large sidewalk to walk/bike	29.79271	-95.51391	9001-9099 Lupton Ct, Houston, Texas, 77055	2	0				2019-05-29	2019-05-29
	Destinations	Point	Regis School	Pk3-8th Grade Boys School	29.79536	-95.47649	Regis School of Sacred Heart	0	0	https://www.theregisschool.org/			2019-10-04	2019-10-04
	Barrier	Point	very busy intersection at Wirt & Westview	This intersection is very busy and a difficult crossing. Recently had some improvements to signals but still very busy.	29.79469	-95.48490	Holy Cross Lutheran Church	0	0				2019-10-04	2019-10-04
	Destinations	Point	The Branch	Fantastic local food and drink location	29.80305	-95.48165	Otilia's Mexican Restaurant	0	0				2019-10-04	2019-10-04
	Destinations	Point	Existing Bike Trail	Existing trail along Addicks reservoir	29.79912	-95.58096	11335 Chatterton Dr, Houston, Texas, 77043	5	0				2019-04-26	2019-04-26
	Destinations	Point	Existing Bike Trail - Northbrook	Existing Northbrook trail	29.81599	-95.54500	2424-2450 Gessner Rd, Houston, Texas, 77080	1	0				2019-04-26	2019-04-26
	Barrier	Point	End of pavement	A few more feet of pavement here would make it easier to ride on Alcott Dr!	29.81644	-95.53359	2502 Palo Pinto Dr, Houston, Texas, 77080	3	0				2019-04-26	2019-04-26
	Desired Route	Line	Alternative East End	This avoids riding along a busy portion of Kempwood	29.81255	-95.46414	2505-2799 McAllister Rd, Houston, Texas, 77092	0	0				2019-04-26	2019-04-26
	Bike Friendly Area	Polygon	Bike path to Mathewson and new restaurant	a bike path from the shadow oaks neighborhood to new metro national restaurants	29.79473	-95.54916	1400-1410 Conrad Sauer Dr, Houston, Texas, 77043	1	0				2019-04-28	2019-04-28
	Bike Friendly Area	Polygon	Bike path to westview	So Neighborhood can bike to SORA pool	29.79998	-95.55376	Shadowdale Dr, Houston, Texas, 77043	0	0				2019-04-28	2019-04-28
	Bike Friendly Area	Polygon	Bike to SORA	Bike path to sora	29.79076	-95.55498	10400-10598 Westview Dr, Houston, Texas, 77043	1	0				2019-04-28	2019-04-28

names covered for privacy

APPENDIX D

VEHICLE TRAFFIC COUNT DATA

Northbound Cambell Rd south of Kempwod Dr
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	9	0	0	0	1	0	0	0	0	0	2	1	1	3	1
1:00	8	0	0	0	0	1	0	0	0	1	2	0	2	2	0
2:00	13	0	0	0	0	0	0	2	1	0	0	3	1	3	3
3:00	5	0	0	0	0	0	0	0	1	1	0	1	0	0	2
4:00	26	4	0	0	0	3	2	1	0	1	2	4	3	2	4
5:00	66	8	0	0	0	0	3	4	2	1	5	11	8	8	16
6:00	121	9	0	0	4	0	4	3	17	21	19	9	15	15	5
7:00	197	28	0	1	1	5	8	12	25	28	29	22	21	9	8
8:00	146	4	1	0	4	2	9	9	17	23	22	27	11	12	5
9:00	146	13	0	0	0	4	5	14	13	19	23	18	16	13	8
10:00	135	10	0	0	0	3	5	13	16	18	20	18	14	9	9
11:00	164	26	0	0	0	1	2	14	10	22	18	28	22	11	10
12:00	251	87	0	0	2	1	8	17	21	23	30	18	18	14	12
13:00	280	143	0	0	1	3	5	19	12	16	21	15	27	11	7
14:00	368	163	0	0	1	5	9	29	35	25	32	31	19	9	10
15:00	397	208	0	1	5	13	13	22	31	26	27	20	14	8	9
16:00	422	195	0	4	10	13	16	34	38	23	28	27	15	10	9
17:00	354	110	0	1	7	12	19	44	35	29	25	26	19	15	12
18:00	330	28	3	1	7	13	18	39	47	41	32	38	28	21	14
19:00	247	15	0	0	1	3	12	26	23	22	41	29	38	15	22
20:00	164	6	0	0	0	0	2	13	7	20	30	31	28	15	12
21:00	152	0	0	0	0	0	1	5	10	15	23	34	26	17	21
22:00	57	0	0	0	0	0	0	0	0	2	11	14	13	10	7
23:00	25	0	0	0	0	0	1	0	0	0	1	5	4	7	7
Totals:	4083	1057	4	8	44	82	142	320	361	377	443	430	363	239	213
Total		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+

85% speed is 35.8

Southbound Cambell Rd south of Kempwod Dr
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	19	0	0	0	0	0	1	0	1	4	7	3	1	0	2
1:00	8	0	0	0	0	1	0	2	0	0	4	1	0	0	0
2:00	4	0	0	0	0	0	0	0	1	1	0	2	0	0	0
3:00	11	0	0	0	0	0	0	1	0	4	4	2	0	0	0
4:00	20	0	0	0	0	1	0	1	2	1	9	1	3	1	1
5:00	100	7	0	0	0	0	2	4	4	16	38	16	11	2	0
6:00	280	17	0	0	0	1	6	17	48	76	68	36	8	2	1
7:00	579	35	0	0	2	7	23	76	135	150	110	34	7	0	0
8:00	246	15	0	0	0	0	5	17	49	58	70	24	5	2	1
9:00	233	12	0	0	0	1	9	15	45	65	57	23	3	3	0
10:00	202	19	0	0	1	0	7	10	31	49	57	19	6	3	0
11:00	214	30	0	0	2	1	6	20	31	50	51	16	6	1	0
12:00	172	45	0	0	0	1	2	6	12	33	37	26	10	0	0
13:00	156	64	0	0	0	2	3	2	9	22	37	16	1	0	0
14:00	183	72	2	0	0	0	2	5	10	35	36	15	4	1	1
15:00	196	89	0	0	0	0	4	4	4	30	41	18	3	2	1
16:00	221	96	2	0	1	1	3	2	10	33	47	22	3	1	0
17:00	326	79	1	0	2	2	5	14	45	74	76	19	8	1	0
18:00	371	30	0	0	0	2	15	39	75	99	79	29	3	0	0
19:00	242	15	0	0	2	2	18	22	33	54	52	32	10	2	0
20:00	184	9	0	0	0	3	9	8	22	44	61	22	4	1	1
21:00	153	4	0	0	1	0	3	8	21	44	44	21	4	2	1
22:00	48	2	0	0	0	0	1	2	2	7	16	11	4	2	1
23:00	24	0	0	0	0	1	0	0	0	9	6	5	2	1	0
Totals:	4192	640	5	0	12	25	126	273	590	958	1007	413	106	27	10
Total		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+

85% speed is 31.6

NB Campbell Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	9	0	0	8	0	1	0	0	0	0	0	0	0	0
1:00	8	0	2	5	0	1	0	0	0	0	0	0	0	0
2:00	13	1	0	7	2	3	0	0	0	0	0	0	0	0
3:00	5	0	0	3	0	1	0	0	0	1	0	0	0	0
4:00	24	2	6	14	0	2	0	0	0	0	0	0	0	0
5:00	65	0	8	36	1	20	0	0	0	0	0	0	0	0
6:00	119	2	12	47	9	41	2	0	6	0	0	0	0	0
7:00	195	2	26	102	10	46	3	0	6	0	0	0	0	0
8:00	144	0	22	82	2	33	1	0	4	0	0	0	0	0
9:00	143	0	22	73	1	43	1	0	2	1	0	0	0	0
10:00	134	0	28	60	4	38	1	0	3	0	0	0	0	0
11:00	162	0	34	92	3	30	0	0	3	0	0	0	0	0
12:00	248	0	58	137	1	49	1	0	2	0	0	0	0	0
13:00	276	2	81	130	1	60	0	0	8	0	0	0	0	0
14:00	365	0	104	171	7	82	1	0	0	0	0	0	0	0
15:00	395	0	137	182	8	66	0	0	2	0	0	0	0	0
16:00	421	3	133	201	7	71	2	0	4	0	0	0	0	0
17:00	351	1	93	176	1	78	1	0	1	0	0	0	0	0
18:00	331	1	72	188	0	70	0	0	0	0	0	0	0	0
19:00	249	0	39	140	1	67	0	0	1	1	0	0	0	0
20:00	162	0	15	111	0	36	0	0	0	0	0	0	0	0
21:00	152	0	11	102	1	38	0	0	0	0	0	0	0	0
22:00	57	0	4	41	0	11	1	0	0	0	0	0	0	0
23:00	25	0	3	19	0	3	0	0	0	0	0	0	0	0
Gr. Total	4053	14	910	2127	59	890	14	0	36	3	0	0	0	0
% of Total	100.0%	0.3%	22.5%	52.5%	1.5%	22.0%	0.3%	0.0%	0.9%	0.1%	0.0%	0.0%	0.0%	0.0%
Total		Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi

SB Campbell Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	19	0	16	3	0	0	0	0	0	0	0	0	0	0
1:00	8	1	5	1	0	0	1	0	0	0	0	0	0	0
2:00	4	0	1	3	0	0	0	0	0	0	0	0	0	0
3:00	11	0	7	2	0	1	0	0	0	1	0	0	0	0
4:00	20	0	14	4	0	1	0	0	0	1	0	0	0	0
5:00	99	0	71	21	0	6	0	0	1	0	0	0	0	0
6:00	279	0	175	79	3	19	0	0	3	0	0	0	0	0
7:00	577	1	365	155	7	34	0	0	14	1	0	0	0	0
8:00	246	0	146	75	0	19	0	0	5	0	0	1	0	0
9:00	233	1	148	53	1	25	0	0	5	0	0	0	0	0
10:00	200	0	129	50	2	15	1	0	3	0	0	0	0	0
11:00	211	1	127	61	1	19	0	0	1	1	0	0	0	0
12:00	170	0	96	56	1	14	1	0	1	1	0	0	0	0
13:00	154	0	84	54	1	13	0	0	1	1	0	0	0	0
14:00	181	3	97	56	3	21	1	0	0	0	0	0	0	0
15:00	194	1	121	55	1	16	0	0	0	0	0	0	0	0
16:00	216	4	115	73	2	20	1	0	1	0	0	0	0	0
17:00	323	3	206	81	2	27	2	0	2	0	0	0	0	0
18:00	371	0	240	105	0	21	2	0	3	0	0	0	0	0
19:00	242	1	156	73	1	10	0	0	1	0	0	0	0	0
20:00	184	0	120	53	0	8	1	0	2	0	0	0	0	0
21:00	150	0	108	39	0	3	0	0	0	0	0	0	0	0
22:00	46	0	35	9	0	2	0	0	0	0	0			

Northbound Blalock Rd south of Kempwod Dr
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	56	0	0	0	0	0	0	3	2	3	7	14	12	10	5
1:00	29	0	0	0	0	0	0	0	1	3	2	11	6	4	2
2:00	14	0	0	0	0	0	0	0	0	0	2	1	4	3	4
3:00	40	0	0	0	0	0	0	0	2	3	7	8	6	9	5
4:00	78	0	0	0	0	0	0	0	1	1	9	13	13	13	28
5:00	244	4	0	0	1	1	6	5	12	16	34	37	47	38	43
6:00	393	23	3	5	13	16	25	37	36	47	49	47	34	31	27
7:00	566	44	5	13	26	50	79	95	93	59	32	21	28	14	7
8:00	451	6	0	0	0	4	12	12	44	66	69	92	76	36	34
9:00	391	7	0	0	1	3	8	16	28	52	83	85	55	32	21
10:00	377	14	0	0	1	5	3	13	37	42	66	68	61	43	24
11:00	406	11	0	3	3	8	27	31	67	73	83	59	22	11	8
12:00	457	36	1	1	4	11	40	44	68	61	85	51	30	19	6
13:00	468	21	0	1	6	13	29	53	74	61	99	50	38	13	10
14:00	520	38	3	9	12	38	70	120	105	51	38	24	4	3	5
15:00	646	87	6	15	21	56	56	66	98	94	68	54	15	5	5
16:00	671	108	6	14	25	46	87	71	86	82	79	39	17	7	4
17:00	706	115	12	29	38	48	74	82	92	74	62	50	19	8	3
18:00	689	104	5	17	32	64	75	92	90	78	55	48	17	8	4
19:00	515	20	0	2	6	3	26	42	64	75	110	71	49	31	16
20:00	345	8	0	0	0	5	4	25	24	45	68	81	37	27	21
21:00	251	2	0	0	0	1	2	9	12	23	47	57	55	25	18
22:00	177	0	0	0	0	1	5	4	5	19	32	36	35	24	16
23:00	66	2	0	0	0	0	1	2	2	4	7	18	12	7	11
Totals:	8556	650	41	109	189	373	629	822	1043	1032	1193	1035	692	421	327
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

NB Blalock Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	56	0	37	16	0	3	0	0	0	0	0	0	0	0
1:00	29	0	20	9	0	0	0	0	0	0	0	0	0	0
2:00	14	0	11	2	0	1	0	0	0	0	0	0	0	0
3:00	40	1	25	11	0	0	1	0	1	1	0	0	0	0
4:00	78	0	56	21	0	1	0	0	0	0	0	0	0	0
5:00	244	4	168	59	0	8	3	0	2	0	0	0	0	0
6:00	391	14	238	105	7	17	1	0	6	1	2	0	0	0
7:00	563	10	353	143	2	29	9	2	10	2	2	0	1	0
8:00	450	4	301	113	1	22	1	0	7	0	0	0	0	1
9:00	391	5	240	110	2	21	3	1	5	2	1	1	0	0
10:00	374	6	247	92	2	19	0	0	5	2	1	0	0	0
11:00	404	5	277	95	2	18	1	0	6	0	0	0	0	0
12:00	453	4	292	120	0	19	4	0	13	0	1	0	0	0
13:00	466	5	303	123	2	16	3	1	12	0	1	0	0	0
14:00	519	7	310	148	2	31	1	1	9	1	5	2	0	2
15:00	642	17	428	148	1	31	3	0	11	0	1	0	2	0
16:00	669	14	440	157	3	37	3	1	10	0	1	2	0	1
17:00	704	24	477	161	1	23	3	2	11	0	1	0	1	0
18:00	687	15	464	149	2	40	2	2	12	0	1	0	0	0
19:00	513	5	365	120	1	15	0	0	4	1	1	0	0	1
20:00	343	4	250	78	0	5	0	0	6	0	0	0	0	0
21:00	250	0	183	53	0	11	1	0	2	0	0	0	0	0
22:00	177	0	139	34	0	3	0	0	0	0	0	0	1	0
23:00	65	0	45	18	0	2	0	0	0	0	0	0	0	0
Gr. Total	8522	144	5669	2085	28	372	39	10	132	10	18	5	5	5
% of Total	100.0%	1.7%	66.5%	24.5%	0.3%	4.4%	0.5%	0.1%	1.5%	0.1%	0.2%	0.1%	0.1%	0.1%
Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi	

Southbound Blalock Rd south of Kempwod Dr
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	34	8	0	0	0	0	0	0	8	12	5	0	1	1	0
1:00	20	3	0	0	0	0	0	0	5	7	4	1	0	0	0
2:00	21	10	0	0	0	0	0	0	0	8	3	0	0	0	0
3:00	24	8	0	0	0	0	0	0	4	7	1	2	1	1	1
4:00	57	18	0	0	0	0	0	1	2	5	13	10	5	2	1
5:00	172	48	0	0	0	0	1	1	4	14	53	34	12	4	1
6:00	397	183	0	0	1	1	2	4	21	58	80	39	8	0	0
7:00	574	295	0	0	2	1	8	31	73	93	54	14	2	1	0
8:00	542	204	0	0	0	0	1	4	16	98	155	58	5	1	0
9:00	440	179	0	0	0	0	2	6	15	60	104	61	11	1	1
10:00	401	215	0	0	1	0	0	1	8	49	85	33	7	2	0
11:00	417	276	0	0	0	0	3	6	9	35	60	21	6	1	0
12:00	378	307	0	0	0	1	1	1	7	18	30	12	1	0	0
13:00	415	368	0	0	0	0	0	1	4	19	15	8	0	0	0
14:00	440	406	0	2	1	0	1	8	7	6	8	1	0	0	0
15:00	455	427	0	0	0	0	0	1	3	8	7	8	1	0	0
16:00	484	458	0	0	0	0	0	1	3	10	6	6	0	0	0
17:00	510	485	0	0	0	0	0	2	2	8	9	4	0	0	0
18:00	482	424	0	0	1	0	1	0	9	19	16	10	1	1	0
19:00	369	309	0	0	1	0	0	1	4	17	27	10	0	0	0
20:00	199	152	0	0	0	1	0	0	2	10	25	6	3	0	0
21:00	193	149	0	0	0	0	1	1	5	10	14	11	1	1	0
22:00	104	82	0	0	0	0	0	0	1	7	5	5	4	0	0
23:00	61	51	0	0	0	0	0	1	0	4	4	1	0	0	0
Totals:	7189	5065	0	2	7	4	21	71	195	565	804	365	70	16	4
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

85% speed is 28.1

SB Blalock Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	34	0	27	7	0	0	0	0	0	0	0	0	0	0
1:00	20	0	17	3	0	0	0	0	0	0	0	0	0	0
2:00	19	0	16	2	0	0	0	0	0	1	0	0	0	0
3:00	23	0	18	5	0	0	0	0	0	0	0	0	0	0
4:00	56	0	46	10	0	0	0	0	0	0	0	0	0	0
5:00	169	3	119	41	1	3	1	0	1	0	0	0	0	0
6:00	396	12	282	78	1	17	2	0	2	0	0	2	0	0
7:00	571	16	408	116	6	12	5	0	6	1	0	1	0	0
8:00	539	9	379	113	5	12	5	0	8	1	2	5	0	0
9:00	433	5	308	102	1	11	2	0	1	1	1	0	0	1
10:00	404	9	289	81	5	8	7	0	4	1	0	0	0	0
11:00	414	8	299	87	4	7	4	0	4	0	0	1	0	0
12:00	378	9	267	80	4	8	5	0	5	0	0	0	0	0
13:00	414	9	299	83	4	11	4	0	4	0	0	0	0	0
14:00	438	11	309	95	4	10	5	0	4	0	0	0	0	0
15:00	447	7	325	94	4	9	4	0	4	0	0	0	0	0
16:00	478	10	342	102	5	10	5	0	4	0	0	0	0	0
17:00	503	11	365	105	4	9	4	0	5	0	0	0	0	0
18:00	475	8	333	112	4	8	5	0	4	0	0	1	0	0
19:00	370	8	264	77	4	9	4	0	4	0	0	0	0	0
20:00	196	5	145	42</										

Northbound Bingle Rd south of Kempwod Dr
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	42	0	0	0	0	0	0	1	1	2	6	15	7	4	6
1:00	20	0	0	0	0	0	0	0	1	1	5	5	3	1	4
2:00	13	0	0	0	0	0	0	0	1	2	1	2	5	1	1
3:00	30	1	0	0	0	0	0	0	2	3	11	7	3	3	3
4:00	64	0	0	0	0	0	0	1	0	4	5	14	14	16	10
5:00	290	1	0	0	0	0	1	1	14	30	41	64	56	47	35
6:00	501	18	0	2	2	4	3	26	38	74	91	113	80	36	14
7:00	758	32	1	2	6	14	33	48	90	149	148	117	78	26	14
8:00	600	25	0	2	4	2	16	38	48	82	106	124	90	43	20
9:00	434	8	0	0	0	0	5	6	16	48	94	93	87	43	34
10:00	500	17	0	0	0	1	3	6	33	64	100	109	92	49	26
11:00	491	9	0	0	0	0	7	9	34	71	101	98	102	43	17
12:00	601	15	0	0	2	4	15	24	32	82	103	141	102	62	19
13:00	595	12	0	0	0	2	9	22	42	58	117	118	120	59	36
14:00	703	41	0	2	8	12	23	45	87	103	114	118	92	40	18
15:00	831	97	8	17	24	50	47	73	83	111	90	93	75	46	17
16:00	888	121	2	17	42	35	85	96	99	101	104	69	64	39	14
17:00	908	124	17	28	33	54	66	74	108	96	91	118	57	30	12
18:00	822	73	1	14	25	44	46	75	98	116	108	106	72	31	13
19:00	569	14	0	0	1	1	5	12	50	96	148	116	70	42	14
20:00	335	5	0	1	1	0	2	4	16	51	61	81	58	32	23
21:00	237	3	0	0	0	0	1	2	6	29	45	62	47	25	17
22:00	168	0	0	0	0	0	0	4	5	18	34	33	40	19	15
23:00	112	0	0	0	0	0	0	1	6	4	15	33	24	18	11
Totals:	10512	616	29	85	148	223	367	568	908	1394	1731	1853	1442	755	393
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

NB Bingle Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	42	0	37	4	0	0	0	0	1	0	0	0	0	0
1:00	20	0	16	4	0	0	0	0	0	0	0	0	0	0
2:00	13	0	8	4	0	1	0	0	0	0	0	0	0	0
3:00	29	0	18	10	0	1	0	0	0	0	0	0	0	0
4:00	64	0	46	17	0	1	0	0	0	0	0	0	0	0
5:00	288	1	189	83	1	9	3	0	1	1	0	0	0	0
6:00	483	2	306	133	3	26	3	0	8	0	1	0	0	1
7:00	724	10	489	177	5	30	2	1	6	0	2	0	1	1
8:00	575	8	385	125	3	38	3	0	11	2	0	0	0	0
9:00	426	2	285	100	4	23	2	1	8	1	0	0	0	0
10:00	483	6	305	131	2	24	3	0	9	2	1	0	0	0
11:00	482	4	302	113	3	32	12	1	9	4	1	1	0	0
12:00	586	3	405	131	2	30	3	0	6	2	1	1	0	2
13:00	583	13	371	136	1	38	5	3	14	0	0	1	0	1
14:00	660	7	420	159	8	40	5	0	15	1	3	0	1	1
15:00	733	23	453	189	7	43	2	1	12	1	0	2	0	0
16:00	761	12	493	192	4	34	8	0	12	1	3	2	0	0
17:00	782	18	524	179	3	36	5	0	15	0	2	0	0	0
18:00	746	18	504	164	1	39	3	1	15	0	1	0	0	0
19:00	554	4	385	128	2	27	0	0	7	0	0	0	1	0
20:00	330	1	259	63	0	6	1	0	0	0	0	0	0	0
21:00	234	2	185	42	0	3	0	0	1	0	1	0	0	0
22:00	168	0	139	25	1	3	0	0	0	0	0	0	0	0
23:00	112	0	86	23	0	3	0	0	0	0	0	0	0	0
Gr. Total	9878	134	6610	2332	50	487	60	8	150	15	16	7	3	6
% of Total	100.0%	1.4%	66.9%	23.6%	0.5%	4.9%	0.6%	0.1%	1.5%	0.2%	0.2%	0.1%	0.0%	0.1%
Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi	

Southbound Bingle Rd south of Kempwod Dr
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	32	0	0	0	0	0	0	0	1	1	5	12	4	6	3
1:00	21	0	0	0	0	0	0	0	0	2	3	6	6	4	6
2:00	20	0	0	0	0	0	0	0	0	1	4	4	3	3	5
3:00	35	0	0	0	0	0	0	0	2	2	4	8	9	9	10
4:00	54	0	0	0	0	0	0	1	0	1	4	14	15	8	11
5:00	241	3	0	0	1	0	0	1	4	5	20	45	61	42	59
6:00	703	27	0	0	0	0	1	6	12	14	60	134	184	160	105
7:00	1069	50	0	0	0	0	3	7	16	46	110	254	341	175	67
8:00	950	54	0	0	0	0	4	5	10	33	65	178	320	195	86
9:00	712	35	0	0	0	0	0	2	8	22	65	170	208	137	65
10:00	566	12	0	0	0	0	1	3	4	18	47	135	162	122	62
11:00	573	18	0	0	1	2	2	2	9	24	41	136	167	106	65
12:00	617	12	0	0	0	0	1	4	4	34	64	158	178	119	43
13:00	601	16	0	0	0	1	1	0	11	16	58	144	185	112	57
14:00	647	21	0	0	0	1	1	3	8	23	57	151	196	120	66
15:00	718	23	0	0	0	0	2	1	14	22	54	173	228	132	69
16:00	912	30	0	0	0	0	0	5	9	25	71	233	305	174	60
17:00	921	31	0	0	0	0	0	2	7	18	67	222	342	171	61
18:00	736	21	0	0	0	0	0	2	13	20	82	202	236	112	48
19:00	438	13	0	0	0	0	2	3	16	15	50	109	109	80	41
20:00	304	3	0	0	0	0	0	0	4	7	33	87	99	47	24
21:00	246	2	0	0	0	0	0	1	4	5	27	57	66	49	35
22:00	143	0	0	0	0	0	0	0	3	7	11	27	50	25	20
23:00	87	1	0	0	0	0	0	0	1	3	13	22	26	13	8
Totals:	11346	372	0	0	2	4	18	48	158	362	1012	2674	3499	2121	1076
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

85% speed is 39.5

SB Bingle Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	32	0	21	9	0	2	0	0	0	0	0	0	0	0
1:00	21	0	14	6	0	1	0	0	0	0	0	0	0	0
2:00	20	1	10	5	0	2	1	0	1	0	0	0	0	0
3:00	35	0	23	5	1	6	0	0	0	0	0	0	0	0
4:00	54	0	25	19	0	8	0	0	1	1	0	0	0	0
5:00	238	0	140	65	5	22	3	0	2	0	0	0	1	0
6:00	676	12	392	172	11	58	3	2	19	2	2	2	0	1
7:00	1015	17	615	227	9	82	5	0	43	3	7	3	2	2
8:00	893	14	512	248	10	54	3	1	39	2	5	1	2	2
9:00	677	14	377	171	4	79	2	1	24	1	3	0	0	1
10:00	552	8	317	141	4	48	9	1	18	1	4	1	0	0
11:00	555	7	310	140	6	57	8	0	23	1	1	0	1	1
12:00	605	7	352	151	2	59	5	5	19	4	0	0	1	0
13:00	584	8	339	153	2	53	5	0	18	3	1	2	0	0
14:00	626	10	378	156	5	49	6	1	16	1	3	1	0	0
15:00	695	4	428	174	5	41	4	5	25	2	2	1	3	1
16:00	881	18	550	222	8	52	3	2	23	1	1	1	0	0
17:00	890	22	577	202	2	37	3	0	36	1	8	2	0	0
18:00	714	10	439	180	0	42	8	1	25	0	6	1	1	

Northbound Hollister Rd south of Kempwood Dr
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	12	0	0	0	0	0	0	0	1	2	4	4	1	0	0
1:00	5	0	0	0	0	0	0	0	1	0	2	2	0	0	0
2:00	4	0	0	0	0	0	0	0	1	1	0	2	0	0	0
3:00	7	0	0	0	0	0	0	1	1	1	0	2	1	1	0
4:00	10	0	0	0	0	0	0	0	1	3	0	2	2	1	1
5:00	79	2	0	2	0	0	2	2	5	16	15	18	14	2	1
6:00	153	16	0	2	6	6	19	29	25	18	17	7	7	1	0
7:00	232	23	0	3	3	26	55	55	43	15	8	1	0	0	0
8:00	141	3	0	0	3	5	13	24	27	37	21	7	1	0	0
9:00	115	4	0	0	0	1	4	9	21	23	27	18	4	4	0
10:00	126	3	0	0	0	1	2	14	20	36	28	18	4	0	0
11:00	132	2	0	0	0	2	10	19	23	35	23	13	5	0	0
12:00	165	3	0	1	4	1	8	23	27	32	39	19	5	2	1
13:00	159	4	0	0	0	4	6	18	23	47	35	15	4	3	0
14:00	220	15	1	3	5	27	49	57	31	15	9	7	1	0	0
15:00	223	25	0	6	13	17	37	63	32	18	5	2	0	0	0
16:00	265	26	3	4	8	13	33	56	46	34	25	13	3	1	0
17:00	294	23	0	1	3	14	25	43	59	53	44	19	8	2	0
18:00	299	31	1	4	10	27	36	54	45	40	28	16	4	3	0
19:00	203	3	0	1	0	4	14	35	53	39	33	12	6	2	1
20:00	140	9	0	0	1	3	9	16	22	32	25	13	7	3	0
21:00	113	1	0	0	0	2	21	18	22	12	13	12	10	2	0
22:00	60	0	0	0	0	0	0	1	9	18	13	11	4	3	1
23:00	42	0	0	0	0	0	0	0	3	8	9	13	5	4	0
Totals:	3199	193	5	27	56	153	343	537	541	535	423	249	98	34	5
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

85% speed is 30.9

Southbound Hollister Rd south of Kempwood Dr
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	10	0	0	0	0	0	0	0	1	0	1	4	3	0	1
1:00	10	0	0	0	0	0	0	0	1	1	2	1	1	4	0
2:00	5	0	0	0	0	0	0	0	0	0	3	1	0	1	0
3:00	11	0	0	0	0	0	0	0	1	0	1	2	4	1	2
4:00	13	0	0	0	0	0	0	0	1	1	1	5	3	1	1
5:00	72	1	0	0	0	0	0	0	0	9	13	14	16	11	8
6:00	201	4	0	2	0	0	20	37	27	28	28	29	14	8	4
7:00	301	18	0	1	3	6	35	77	82	34	26	15	2	2	0
8:00	210	3	0	0	0	2	3	19	29	42	44	34	21	7	6
9:00	166	6	0	0	2	1	6	8	14	25	35	29	24	7	9
10:00	144	1	0	0	0	2	2	3	10	20	35	39	22	6	4
11:00	155	1	0	0	0	0	1	2	7	21	44	35	30	8	6
12:00	179	2	0	0	0	0	0	8	22	28	47	33	29	7	3
13:00	167	3	1	0	0	1	5	6	12	31	35	41	16	9	7
14:00	181	13	0	0	5	3	19	26	50	30	12	18	3	2	0
15:00	207	10	0	0	2	1	7	34	42	40	30	26	10	4	1
16:00	259	14	1	0	0	2	6	19	29	42	50	53	29	13	1
17:00	285	16	0	0	1	4	10	18	22	35	68	47	43	15	6
18:00	295	17	1	2	4	7	18	37	51	41	53	27	31	5	1
19:00	184	7	0	0	2	3	4	16	22	13	44	46	20	3	4
20:00	120	3	0	0	0	0	2	0	3	12	27	30	27	11	5
21:00	89	1	0	0	0	1	1	2	10	8	14	27	13	8	4
22:00	46	1	0	0	0	0	0	0	1	5	13	11	7	3	5
23:00	29	0	0	0	0	0	0	0	0	4	5	10	7	2	1
Totals:	3339	121	3	5	19	33	139	312	437	470	631	577	375	138	79
Total	1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+	

85% speed is 34.2

NB Hollister Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	12	0	9	2	0	1	0	0	0	0	0	0	0	0
1:00	5	0	4	1	0	0	0	0	0	0	0	0	0	0
2:00	4	0	3	1	0	0	0	0	0	0	0	0	0	0
3:00	7	0	7	0	0	0	0	0	0	0	0	0	0	0
4:00	10	0	4	6	0	0	0	0	0	0	0	0	0	0
5:00	79	2	52	21	1	1	1	0	0	0	1	0	0	0
6:00	152	1	84	42	7	15	0	0	3	0	0	0	0	0
7:00	229	1	165	52	1	5	1	0	4	0	0	0	0	0
8:00	141	0	98	30	0	11	1	0	1	0	0	0	0	0
9:00	115	0	71	35	2	6	0	0	1	0	0	0	0	0
10:00	126	0	90	29	0	6	1	0	0	0	0	0	0	0
11:00	132	0	94	31	0	5	2	0	0	0	0	0	0	0
12:00	165	0	106	50	0	7	0	0	2	0	0	0	0	0
13:00	159	1	112	36	2	8	0	0	0	0	0	0	0	0
14:00	220	2	145	54	7	10	1	0	1	0	0	0	0	0
15:00	222	0	145	57	4	15	0	0	1	0	0	0	0	0
16:00	263	1	183	64	0	12	0	0	3	0	0	0	0	0
17:00	293	0	199	77	1	15	1	0	0	0	0	0	0	0
18:00	300	5	195	81	1	18	0	0	0	0	0	0	0	0
19:00	202	1	124	69	0	6	0	0	2	0	0	0	0	0
20:00	141	0	111	25	0	5	0	0	0	0	0	0	0	0
21:00	113	0	79	31	1	2	0	0	0	0	0	0	0	0
22:00	60	1	45	14	0	0	0	0	0	0	0	0	0	0
23:00	42	0	36	5	0	1	0	0	0	0	0	0	0	0
Gr. Total	3192	15	2161	813	27	149	8	0	18	0	1	0	0	0
% of Total	100.0%	0.5%	67.7%	25.5%	0.8%	4.7%	0.3%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi	

NORTHBOUND

SB Hollister Rd south of Kempwood Dr
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	10	0	4	6	0	0	0	0	0	0	0	0	0	0
1:00	10	0	2	3	0	5	0	0	0	0	0	0	0	0
2:00	5	0	2	2	0	1	0	0	0	0	0	0	0	0
3:00	11	0	5	4	1	1	0	0	0	0	0	0	0	0
4:00	13	0	3	10	0	0	0	0	0	0	0	0	0	0
5:00	72	0	26	30	2	13	0	0	1	0	0	0	0	0
6:00	201	0	74	63	12	48	1	0	3	0	0	0	0	0
7:00	298	1	116	94	7	70	2	0	8	0	0	0	0	0
8:00	210	0	82	86	5	32	0	0	5	0	0	0	0	0
9:00	166	0	59	64	0	38	4	0	1	0	0	0	0	0
10:00	144	0	52	68	0	22	1	0	1	0	0	0	0	0
11:00	155	0	56	63	2	32	1	0	1	0	0	0	0	0
12:00	179	0	63	64	0	46	2	0	4	0	0	0	0	0
13:00	167	1	60	66	0	36	1	0	3	0	0	0	0	0
14:00	181	0	61	79	6	34	0	0	1	0	0	0	0	0
15:00	206	0	98	62	5	38	1	0	2	0	0	0	0	0
16:00	259	1	108	84	8	54	0	0	4	0	0	0	0	0
17:00	285	2	125	107	1	45	2	0	3	0	0	0	0	0
18:00	293	5	119	119	0	45	0	0	5	0	0	0	0	0
19:00	184	0	78	67	0	37	1	0	1	0	0	0	0	0
20:00	120	1	48	45	0	24	0	0	2	0	0	0	0	0
21:00	89	0	41	35	0	13	0	0	0	0	0	0	0	0
22:00	46	0	14	23	0	9	0	0	0	0	0	0	0	0

NorthBound Mangum Blvd N of W 34th St
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	90	2	2	8	33	19	16	7	2	0	1	0	0	0	0
1:00	40	5	3	5	8	11	4	1	1	1	0	1	0	0	0
2:00	26	1	2	4	3	8	4	1	1	2	0	0	0	0	0
3:00	21	1	2	1	3	7	5	0	1	1	0	0	0	0	0
4:00	37	1	2	0	6	7	9	6	4	1	0	1	0	0	0
5:00	134	3	2	12	21	42	30	11	6	4	2	1	0	0	0
6:00	306	9	20	46	55	92	49	27	5	2	1	0	0	0	0
7:00	487	16	61	100	115	119	46	17	5	4	3	1	0	0	0
8:00	404	14	47	75	94	79	52	26	10	3	3	1	0	0	0
9:00	354	25	46	60	81	79	46	11	5	1	0	0	0	0	0
10:00	429	12	51	91	108	92	43	23	8	1	0	0	0	0	0
11:00	467	15	49	97	123	95	48	27	6	2	3	0	2	0	0
12:00	568	16	70	106	154	121	63	20	11	6	1	0	0	0	0
13:00	570	24	70	107	162	118	62	22	4	1	0	0	0	0	0
14:00	624	32	86	132	170	129	46	16	10	3	0	0	0	0	0
15:00	722	25	94	123	189	172	87	24	6	2	0	0	0	0	0
16:00	864	28	104	178	233	179	96	31	12	2	0	1	0	0	0
17:00	973	33	124	203	201	242	121	32	7	7	2	1	0	0	0
18:00	887	28	100	165	225	221	106	34	8	0	0	0	0	0	0
19:00	640	17	45	107	176	171	84	30	8	2	0	0	0	0	0
20:00	463	16	25	67	128	111	75	29	7	2	2	0	1	0	0
21:00	393	18	25	47	97	110	66	21	4	3	1	1	0	0	0
22:00	291	9	17	36	82	87	38	16	4	1	1	0	0	0	0
23:00	179	4	6	18	45	53	34	11	5	3	0	0	0	0	0
Totals:	9969	354	1053	1788	2512	2364	1230	443	140	54	20	8	3	0	0
Total		0-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	>76

85% speed is 36.6

NB Magnum Blvd north of W 34th St
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	12	0	9	2	0	1	0	0	0	0	0	0	0	0
1:00	5	0	4	1	0	0	0	0	0	0	0	0	0	0
2:00	4	0	3	1	0	0	0	0	0	0	0	0	0	0
3:00	7	0	7	0	0	0	0	0	0	0	0	0	0	0
4:00	10	0	4	6	0	0	0	0	0	0	0	0	0	0
5:00	79	2	52	21	1	1	1	0	0	1	0	0	0	0
6:00	152	1	84	42	7	15	0	0	3	0	0	0	0	0
7:00	229	1	165	52	1	5	1	0	4	0	0	0	0	0
8:00	141	0	98	30	0	11	1	0	1	0	0	0	0	0
9:00	115	0	71	35	2	6	0	0	1	0	0	0	0	0
10:00	126	0	90	29	0	6	1	0	0	0	0	0	0	0
11:00	132	0	94	31	0	5	2	0	0	0	0	0	0	0
12:00	165	0	106	50	0	7	0	0	2	0	0	0	0	0
13:00	159	1	112	36	2	8	0	0	0	0	0	0	0	0
14:00	220	2	145	54	7	10	1	0	1	0	0	0	0	0
15:00	222	0	145	57	4	15	0	0	1	0	0	0	0	0
16:00	263	1	183	64	0	12	0	0	3	0	0	0	0	0
17:00	293	0	199	77	1	15	1	0	0	0	0	0	0	0
18:00	300	5	195	81	1	18	0	0	0	0	0	0	0	0
19:00	202	1	124	69	0	6	0	0	2	0	0	0	0	0
20:00	141	0	111	25	0	5	0	0	0	0	0	0	0	0
21:00	113	0	79	31	1	2	0	0	0	0	0	0	0	0
22:00	60	1	45	14	0	0	0	0	0	0	0	0	0	0
23:00	42	0	36	5	0	1	0	0	0	0	0	0	0	0
Gr. Total	3192	15	2161	813	27	149	8	0	18	0	1	0	0	0
% of Total	100.0%	0.5%	67.7%	25.5%	0.8%	4.7%	0.3%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Total		Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi

NORTHBOUND

Southbound Magnum Blvd north of W 34th St
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	18	0	0	0	0	0	1	1	0	2	3	1	4	6	0
1:00	14	0	0	0	0	0	0	2	0	1	2	3	0	5	1
2:00	15	0	0	0	0	1	0	0	0	2	3	2	4	2	1
3:00	10	0	0	0	0	0	2	0	0	1	4	2	1	0	0
4:00	21	0	0	0	0	0	2	1	0	2	2	6	4	2	2
5:00	59	1	0	0	1	1	2	0	0	8	8	15	12	8	3
6:00	119	2	0	0	0	1	2	6	8	6	14	25	32	18	5
7:00	299	5	0	0	0	0	3	11	8	9	31	92	90	39	11
8:00	257	7	0	0	0	2	1	11	9	15	35	81	64	28	4
9:00	216	3	0	0	0	0	3	6	11	17	32	63	55	20	6
10:00	211	3	0	0	0	0	1	4	9	28	49	52	39	18	8
11:00	297	8	0	0	0	3	3	14	11	23	58	74	68	25	10
12:00	319	8	0	0	0	2	5	7	11	26	67	87	59	32	15
13:00	323	8	0	0	0	1	5	10	18	23	61	86	74	25	12
14:00	420	7	0	0	1	1	5	2	14	30	85	129	107	29	10
15:00	544	16	0	0	1	0	3	12	23	36	88	171	132	44	18
16:00	735	21	0	0	1	1	3	15	25	50	114	247	187	58	13
17:00	790	27	0	0	0	0	5	7	14	68	110	226	227	76	30
18:00	618	25	0	0	0	0	3	15	31	39	106	196	156	34	13
19:00	313	4	0	0	0	1	2	5	4	13	51	123	76	21	13
20:00	234	4	0	0	0	0	1	3	12	11	31	79	58	25	10
21:00	170	0	0	0	0	1	0	5	8	6	52	47	35	12	4
22:00	115	0	0	0	0	0	1	2	3	5	19	33	30	18	4
23:00	57	0	0	0	0	1	1	2	1	7	6	16	16	6	1
Totals:	6174	149	0	0	4	16	54	141	220	428	1031	1856	1530	551	194
Total		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+

85% speed is 37.4

SB Magnum Blvd north of W 34th St
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	18	0	14	3	0	1	0	0	0	0	0	0	0	0
1:00	14	0	11	3	0	0	0	0	0	0	0	0	0	0
2:00	15	0	6	6	0	2	1	0	0	0	0	0	0	0
3:00	10	0	8	2	0	0	0	0	0	0	0	0	0	0
4:00	21	0	16	4	0	0	0	0	1	0	0	0	0	0
5:00	59	1	33	19	0	6	0	0	0	0	0	0	0	0
6:00	119	0	89	19	0	6	1	0	4	0	0	0	0	0
7:00	299	4	202	70	0	16	2	0	5	0	0	0	0	0
8:00	256	0	172	69	0	12	2	0	1	0	0	0	0	0
9:00	216	1	122	59	3	23	5	0	2	1	0	0	0	0
10:00	211	1	123	52	3	18	2	0	12	0	0	0	0	0
11:00	296	2	179	76	2	26	4	0	5	1	1	0	0	0
12:00	317	0	202	75	3	24	3	0	5	2	3	0	0	0
13:00	321	1	193	88	3	27	3	0	6	0	0	0	0	0
14:00	419	5	278	87	3	30	3	1	8	2	1	0	0	1
15:00	541	4	361	122	3	37	4	0	8	1	1	0	0	0
16:00	732	9	497	156	2	43	1	0	16	2	3	1	2	0
17:00	789	8	568	142	5	39	3	4	15	1	2	1	1	0
18:00	616	7	433	113	3	42	0	2	14	1	1	0	0	0
19:00	312	1	227	58	0	18	0	0	7	1	0	0	0	0
20:00	233	1	170	47	0	11	1	0	2	1	0	0	0	0
21:00	170	1	126	33	1	7	0	0						

Northbound TC Jester Blvd north of W 34th St
February 5, 2019
Speed Study

NORTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	59	0	0	0	0	0	3	2	7	12	15	7	8	3	2
1:00	35	2	0	3	0	0	2	2	7	9	1	3	4	1	1
2:00	38	1	0	1	0	0	0	2	5	10	5	6	6	1	1
3:00	37	0	0	0	0	0	1	1	4	6	8	5	7	3	2
4:00	89	0	0	0	1	0	3	0	11	6	12	20	19	10	7
5:00	330	1	0	0	0	0	2	9	14	51	57	82	57	40	17
6:00	714	18	1	1	4	2	11	21	67	127	156	164	77	45	20
7:00	1029	122	16	42	54	82	124	139	123	152	111	40	14	6	4
8:00	935	33	2	6	13	36	62	107	170	188	162	104	37	10	5
9:00	595	14	0	1	6	4	15	44	100	150	123	76	45	11	6
10:00	542	14	1	5	9	7	22	39	90	136	132	58	18	8	3
11:00	615	30	0	5	19	18	24	51	111	141	113	62	33	7	1
12:00	563	15	0	1	15	18	29	61	105	145	94	44	28	6	2
13:00	562	8	0	0	2	8	9	46	81	146	130	91	22	12	7
14:00	574	10	0	0	3	15	13	63	117	143	113	68	22	6	1
15:00	700	21	0	2	15	18	35	80	159	163	109	64	25	5	4
16:00	693	20	0	4	14	23	45	79	152	189	120	28	14	2	3
17:00	665	28	1	5	12	22	32	67	118	154	109	63	40	11	3
18:00	632	12	0	0	10	7	14	50	107	157	136	92	35	10	2
19:00	477	2	0	0	0	3	3	23	66	109	116	92	43	10	10
20:00	348	5	0	2	2	0	7	19	42	73	87	58	24	24	5
21:00	235	2	0	0	2	2	0	16	31	53	43	49	27	7	3
22:00	161	2	0	0	0	1	1	7	22	25	43	26	14	12	8
23:00	118	0	0	0	0	1	1	12	16	25	27	18	10	7	1
Totals:	10746	360	21	78	181	267	458	940	1725	2370	2022	1320	629	257	118
Total		1-3	4-6	7-9	10-12	13-15	16-18	19-21	22-24	25-27	28-30	31-33	34-36	37-39	40+

85% speed is 32.7

Southbound TC Jester Blvd N of W 34th St
February 5, 2019
Speed Study

SOUTHBOUND															
TIME	Total	1-3 MPH	4-6 MPH	7-9 MPH	10-12 MPH	13-15 MPH	16-18 MPH	19-21 MPH	22-24 MPH	25-27 MPH	28-30 MPH	31-33 MPH	34-36 MPH	37-39 MPH	40+ MPH
0:00	28	0	0	1	2	12	9	4	0	0	0	0	0	0	0
1:00	14	0	0	0	2	5	4	1	1	1	0	0	0	0	0
2:00	18	0	0	1	0	7	7	2	1	0	0	0	0	0	0
3:00	19	0	1	0	1	5	5	2	3	1	1	0	0	0	0
4:00	54	0	0	5	3	9	16	13	6	2	0	0	0	0	0
5:00	213	7	3	7	6	49	65	57	17	1	1	0	0	0	0
6:00	589	15	6	10	54	187	223	82	10	2	0	0	0	0	0
7:00	910	26	5	36	87	316	308	93	38	1	0	0	0	0	0
8:00	719	16	2	12	66	231	271	99	20	1	1	0	0	0	0
9:00	459	8	2	13	32	121	196	75	10	2	0	0	0	0	0
10:00	410	11	4	24	36	136	142	45	10	2	0	0	0	0	0
11:00	378	7	7	17	29	118	138	47	12	2	1	0	0	0	0
12:00	457	7	3	13	34	133	189	67	11	0	0	0	0	0	0
13:00	409	5	5	11	32	146	143	58	7	2	0	0	0	0	0
14:00	380	16	11	13	34	108	142	45	11	0	0	0	0	0	0
15:00	498	5	3	18	54	143	190	67	15	3	0	0	0	0	0
16:00	424	4	3	7	26	131	177	61	14	1	0	0	0	0	0
17:00	395	3	4	7	38	140	152	47	4	0	0	0	0	0	0
18:00	358	0	2	16	36	119	144	32	7	2	0	0	0	0	0
19:00	254	3	1	15	19	85	94	33	4	0	0	0	0	0	0
20:00	173	1	2	5	13	47	68	26	8	2	1	0	0	0	0
21:00	130	0	1	5	6	65	40	10	3	0	0	0	0	0	0
22:00	102	2	0	10	10	33	36	10	1	0	0	0	0	0	0
23:00	59	0	2	2	8	19	14	9	4	1	0	0	0	0	0
Totals:	7450	136	67	248	628	2365	2773	985	217	26	5	0	0	0	0
Total		0-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	>76

85% speed is 40.6

NB TC Jester Blvd north of W 34th St
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	59	0	45	11	1	2	0	0	0	0	0	0	0	0
1:00	34	3	21	8	0	2	0	0	0	0	0	0	0	0
2:00	37	1	22	12	0	1	0	0	0	1	0	0	0	0
3:00	37	0	26	7	0	4	0	0	0	0	0	0	0	0
4:00	89	0	58	21	0	10	0	0	0	0	0	0	0	0
5:00	330	0	223	65	3	36	0	0	3	0	0	0	0	0
6:00	714	7	459	174	6	61	0	0	7	0	0	0	0	0
7:00	1028	47	654	216	6	78	6	0	18	0	2	1	0	0
8:00	931	18	605	221	5	66	3	1	10	2	0	0	0	0
9:00	594	8	364	159	2	54	2	0	3	1	0	1	0	0
10:00	541	6	332	137	1	52	3	0	9	0	1	0	0	0
11:00	613	11	386	144	2	61	0	0	7	2	0	0	0	0
12:00	561	6	328	151	3	62	4	0	5	2	0	0	0	0
13:00	560	3	367	118	5	56	2	0	7	0	0	2	0	0
14:00	573	3	361	132	2	62	4	0	7	1	1	0	0	0
15:00	698	3	448	163	5	66	5	0	7	0	1	0	0	0
16:00	690	7	448	171	2	48	4	0	9	0	0	0	1	0
17:00	664	13	435	153	2	49	0	0	12	0	0	0	0	0
18:00	631	7	410	161	1	46	2	0	4	0	0	0	0	0
19:00	477	3	322	101	0	47	0	0	4	0	0	0	0	0
20:00	348	1	245	80	0	21	0	0	1	0	0	0	0	0
21:00	234	1	167	46	0	20	0	0	0	0	0	0	0	0
22:00	161	0	123	26	0	11	0	0	0	1	0	0	0	0
23:00	118	0	94	21	0	3	0	0	0	0	0	0	0	0
Gr. Total	10722	148	6943	2498	46	918	35	1	113	10	5	4	1	0
% of Total	100.0%	1.4%	64.8%	23.3%	0.4%	8.6%	0.3%	0.0%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%
Total		Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi

NORTHBOUND

SB TC Jester Blvd north of W 34th St
February 5, 2019
Mechanical Vehicle Classification

Time	Total	Bikes	Cars & Trailers	2 Axle, Long	Buses	2 Axle, 6 Tire	3 Axle, Single	4 Axle, Single	<5 Axle, Double	5 Axle, Double	>6 Axle, Double	<6 Axle, Multi	6 Axle, Multi	>6 Axle, Multi
0:00	28	0	21	3	1	3	0	0	0	0	0	0	0	0
1:00	14	0	10	3	0	1	0	0	0	0	0	0	0	0
2:00	18	0	15	2	0	1	0	0	0	0	0	0	0	0
3:00	19	0	11	4	0	4	0	0	0	0	0	0	0	0
4:00	54	0	33	11	0	7	0	0	0	3	0	0	0	0
5:00	212	0	131	50	1	28	1	0	1	0	0	0	0	0
6:00	586	8	399	114	7	44	2	0	11	1	0	0	0	0
7:00	910	11	588	187	5	81	2	2	25	1	6	2	0	0
8:00	718	9	464	152	0	59	3	2	19	6	2	2	0	0
9:00	457	2	281	116	0	47	0	0	10	0	1	0	0	0
10:00	410	5	248	89	3	48	4	2	10	1	0	0	0	0
11:00	377	2	218	95	2	52	1	1	5	1	0	0	0	0
12:00	456	3	284	105	3	47	3	0	9	1	1	0	0	0
13:00	408	0	251	96	2	39	4	1	13	0	1	1	0	0
14:00	378	1	257	86	1	28	0	0	4	1	0	0	0	0
15:00	498	2	336	110	3	39	2	1	5	0	0	0	0	0
16:00	424	2	267	112	3	34	0	0	5	1	0	0	0	0
17:00	394	0	270	85	0	30	2	0	7	0	0	0	0	0
18:00	358	2	241	71	0	44	0	0	0	0	0	0	0	0
19:00	254	0	172	61	0	19	0	0	1	1	0	0	0	0
20:00	173	0	121											

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
 Movements
 Location: 29.812877, -95.569857

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Direction	Brittmoore Rd Southbound						Hammerly Blvd Westbound						Brittmoore Rd Northbound						Hammerly Blvd Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2019-02-05 7:00AM	19	721	295	0	1035	1	148	41	213	0	402	0	258	403	35	0	696	0	31	59	31	0	121	0	2254
8:00AM	21	801	253	0	1075	3	111	78	186	0	375	0	221	328	38	0	587	1	44	79	21	0	144	2	2181
4:00PM	6	460	190	0	656	4	356	34	184	0	574	1	365	808	18	0	1191	3	22	58	15	0	95	2	2516
5:00PM	14	539	218	0	771	8	299	69	262	0	630	0	275	750	35	0	1060	0	23	40	12	0	75	0	2536
Total	60	2521	956	0	3537	16	914	222	845	0	1981	1	1119	2289	126	0	3534	4	120	236	79	0	435	4	9487
% Approach	1.7%	71.3%	27.0%	0%	-	-	46.1%	11.2%	42.7%	0%	-	-	31.7%	64.8%	3.6%	0%	-	-	27.6%	54.3%	18.2%	0%	-	-	-
% Total	0.6%	26.6%	10.1%	0%	37.3%	-	9.6%	2.3%	8.9%	0%	20.9%	-	11.8%	24.1%	1.3%	0%	37.3%	-	1.3%	2.5%	0.8%	0%	4.6%	-	-
Lights	58	2455	909	0	3422	-	864	217	805	0	1886	-	1059	2202	126	0	3387	-	117	236	75	0	428	-	9123
% Lights	96.7%	97.4%	95.1%	0%	96.7%	-	94.5%	97.7%	95.3%	0%	95.2%	-	94.6%	96.2%	100%	0%	95.8%	-	97.5%	100%	94.9%	0%	98.4%	-	96.2%
Articulated Trucks	0	24	17	0	41	-	13	0	14	0	27	-	12	39	0	0	51	-	0	0	0	0	0	-	119
% Articulated Trucks	0%	1.0%	1.8%	0%	1.2%	-	1.4%	0%	1.7%	0%	1.4%	-	1.1%	1.7%	0%	0%	1.4%	-	0%	0%	0%	0%	0%	-	1.3%
Buses and Single-Unit Trucks	2	41	30	0	73	-	37	5	25	0	67	-	48	47	0	0	95	-	3	0	4	0	7	-	242
% Buses and Single-Unit Trucks	3.3%	1.6%	3.1%	0%	2.1%	-	4.0%	2.3%	3.0%	0%	3.4%	-	4.3%	2.1%	0%	0%	2.7%	-	2.5%	0%	5.1%	0%	1.6%	-	2.6%
Bicycles on Road	0	1	0	0	1	-	0	0	1	0	1	-	0	1	0	0	1	-	0	0	0	0	0	-	3
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0.1%	0%	0.1%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	16	-	-	-	-	-	1	-	-	-	-	-	4	-	-	-	-	-	4	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-
Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-	-	-	-	-	0%	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
 Movements
 Location: 29.812631, -95.564103

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Direction	SBFR BW 8 Southbound						Hammerly Blvd Westbound						SBFR BW 8 Northbound						Hammerly Blvd Eastbound						Int
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	
2019-02-05 7:00AM	123	1751	159	65	2098	5	0	306	394	0	700	0	0	0	0	246	246	2	228	457	0	1	686	2	3730
8:00AM	132	1764	113	55	2064	7	0	374	270	0	644	0	0	0	0	246	246	0	296	342	0	0	638	0	3592
4:00PM	143	1722	207	126	2198	1	0	444	262	0	706	0	0	0	0	266	266	3	277	522	0	0	799	0	3969
5:00PM	162	1572	208	128	2070	8	0	455	230	0	685	0	0	0	0	182	182	1	188	472	0	0	660	2	3597
Total	560	6809	687	374	8430	21	0	1579	1156	0	2735	0	0	0	0	940	940	6	989	1793	0	1	2783	4	14888
% Approach	6.6%	80.8%	8.1%	4.4%	-	-	0%	57.7%	42.3%	0%	-	-	0%	0%	0%	100%	-	-	35.5%	64.4%	0%	0%	-	-	-
% Total	3.8%	45.7%	4.6%	2.5%	56.6%	-	0%	10.6%	7.8%	0%	18.4%	-	0%	0%	0%	6.3%	6.3%	-	6.6%	12.0%	0%	0%	18.7%	-	-
Lights	535	6655	668	364	8222	-	0	1496	1119	0	2615	-	0	0	0	907	907	-	925	1726	0	1	2652	-	14396
% Lights	95.5%	97.7%	97.2%	97.3%	97.5%	-	0%	94.7%	96.8%	0%	95.6%	-	0%	0%	0%	96.5%	96.5%	-	93.5%	96.3%	0%	100%	95.3%	-	96.7%
Articulated Trucks	3	57	6	3	69	-	0	25	5	0	30	-	0	0	0	9	9	-	16	14	0	0	30	-	138
% Articulated Trucks	0.5%	0.8%	0.9%	0.8%	0.8%	-	0%	1.6%	0.4%	0%	1.1%	-	0%	0%	0%	1.0%	1.0%	-	1.6%	0.8%	0%	0%	1.1%	-	0.9%
Buses and Single-Unit Trucks	22	97	13	7	139	-	0	58	32	0	90	-	0	0	0	24	24	-	48	53	0	0	101	-	354
% Buses and Single-Unit Trucks	3.9%	1.4%	1.9%	1.9%	1.6%	-	0%	3.7%	2.8%	0%	3.3%	-	0%	0%	0%	2.6%	2.6%	-	4.9%	3.0%	0%	0%	3.6%	-	2.4%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	21	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	4	-
% Pedestrians	-	-	-	-	-	100%	-	-	-	-	-	-	-	-	-	-	-	83.3%	-	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-
Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	-	-	-	-	-	-	16.7%	-	-	-	-	-	0%	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
 Movements
 Location: 29.812582, -95.562994

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Direction	NBFR BW 8 Southbound					Hammerly Blvd Westbound					NBFR BW 8 Northbound					Hammerly Blvd Eastbound					Int			
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*				
2019-02-05 7:00AM	0	0	0	65	65	189	521	0	0	710	3	261	1533	169	232	2195	0	0	453	173	0	626	0	3596
8:00AM	0	0	0	56	56	116	368	0	0	484	0	137	1461	250	240	2088	0	0	293	180	0	473	0	3101
4:00PM	0	1	0	140	141	164	476	0	0	640	0	274	1580	238	261	2353	0	0	465	276	0	741	0	3875
5:00PM	0	0	0	127	127	152	503	0	0	655	0	362	1715	188	186	2451	0	0	513	197	0	710	0	3943
Total	0	1	0	388	389	621	1868	0	0	2489	3	1034	6289	845	919	9087	0	0	1724	826	0	2550	0	14515
% Approach	0%	0.3%	0%	99.7%	-	24.9%	75.1%	0%	0%	-	-	11.4%	69.2%	9.3%	10.1%	-	-	0%	67.6%	32.4%	0%	-	-	-
% Total	0%	0%	0%	2.7%	2.7%	4.3%	12.9%	0%	0%	17.1%	-	7.1%	43.3%	5.8%	6.3%	62.6%	-	0%	11.9%	5.7%	0%	17.6%	-	-
Lights	0	1	0	380	381	611	1810	0	0	2421	-	1004	6165	783	875	8827	-	0	1671	785	0	2456	-	14085
% Lights	0%	100%	0%	97.9%	97.9%	98.4%	96.9%	0%	0%	97.3%	-	97.1%	98.0%	92.7%	95.2%	97.1%	-	0%	96.9%	95.0%	0%	96.3%	-	97.0%
Articulated Trucks	0	0	0	3	3	2	5	0	0	7	-	2	54	26	11	93	-	0	7	17	0	24	-	127
% Articulated Trucks	0%	0%	0%	0.8%	0.8%	0.3%	0.3%	0%	0%	0.3%	-	0.2%	0.9%	3.1%	1.2%	1.0%	-	0%	0.4%	2.1%	0%	0.9%	-	0.9%
Buses and Single-Unit Trucks	0	0	0	5	5	8	53	0	0	61	-	28	70	36	33	167	-	0	45	24	0	69	-	302
% Buses and Single-Unit Trucks	0%	0%	0%	1.3%	1.3%	1.3%	2.8%	0%	0%	2.5%	-	2.7%	1.1%	4.3%	3.6%	1.8%	-	0%	2.6%	2.9%	0%	2.7%	-	2.1%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.1%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	-	-	-	-	-	20	-	-	-	-	-	3	-	-	-	-	-	0	0
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-90.9%	-	-	-	-	-	-100%	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	0	0
Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-9.1%	-	-	-	-	-	-	-	-	-	-	-	-	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
 Movements
 Location: 29.816007, -95.545266

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Direction	Gessner Rd Southbound					Emnora Lane Westbound					Gessner Rd Northbound					Emnora Lane Eastbound					Int				
	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*	R	T	L	U	App Ped*					
2019-02-12 7:00AM	152	1458	67	0	1677	0	60	40	63	0	163	0	40	936	34	0	1010	0	79	28	86	0	193	0	3043
8:00AM	57	1238	41	0	1336	2	41	16	24	0	81	1	22	826	33	1	882	0	66	15	50	0	131	6	2430
4:00PM	99	1216	63	1	1379	1	89	38	38	0	165	4	49	1408	55	8	1520	4	45	41	80	0	166	6	3230
5:00PM	130	1247	82	3	1462	2	90	52	38	0	180	5	58	1603	72	7	1740	3	52	42	89	0	183	6	3565
Total	438	5159	253	4	5854	5	280	146	163	0	589	10	169	4773	194	16	5152	7	242	126	305	0	673	18	12268
% Approach	7.5%	88.1%	4.3%	0.1%	-	-	47.5%	24.8%	27.7%	0%	-	-	3.3%	92.6%	3.8%	0.3%	-	-	36.0%	18.7%	45.3%	0%	-	-	-
% Total	3.6%	42.1%	2.1%	0%	47.7%	-	2.3%	1.2%	1.3%	0%	4.8%	-	1.4%	38.9%	1.6%	0.1%	42.0%	-	2.0%	1.0%	2.5%	0%	5.5%	-	-
Lights	433	5066	242	4	5745	-	275	142	155	0	572	-	166	4707	193	16	5082	-	240	123	302	0	665	-	12064
% Lights	98.9%	98.2%	95.7%	100%	98.1%	-	98.2%	97.3%	95.1%	0%	97.1%	-	98.2%	98.6%	99.5%	100%	98.6%	-	99.2%	97.6%	99.0%	0%	98.8%	-	98.3%
Articulated Trucks	0	11	2	0	13	-	1	0	1	0	2	-	0	13	0	0	13	-	0	0	0	0	0	-	28
% Articulated Trucks	0%	0.2%	0.8%	0%	0.2%	-	0.4%	0%	0.6%	0%	0.3%	-	0%	0.3%	0%	0%	0.3%	-	0%	0%	0%	0%	0%	-	0.2%
Buses and Single-Unit Trucks	5	82	9	0	96	-	4	4	7	0	15	-	3	53	1	0	57	-	2	2	3	0	7	-	175
% Buses and Single-Unit Trucks	1.1%	1.6%	3.6%	0%	1.6%	-	1.4%	2.7%	4.3%	0%	2.5%	-	1.8%	1.1%	0.5%	0%	1.1%	-	0.8%	1.6%	1.0%	0%	1.0%	-	1.4%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	1	0	0	1	-	1
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0.8%	0%	0%	0.1%	-	0%
Pedestrians	-	-	-	-	-	5	-	-	-	-	-	9	-	-	-	-	-	7	-	-	-	-	-	18	
% Pedestrians	-	-	-	-	-	-100%	-	-	-	-	-	-90.0%	-	-	-	-	-	-100%	-	-	-	-	-	-100%	-
Bicycles on Crosswalk	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	
Bicycles on Crosswalk	-	-	-	-	-	0%	-	-	-	-	-	10.0%	-	-	-	-	-	0%	-	-	-	-	-	0%	

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Full Length (7 AM-9 AM, 4 PM-6 PM)

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

Location: 29.817075, -95.485358



Provided by: C. J. Hensch & Associates Inc.

5215 Sycamore Ave., Pasadena, TX, 77503, US

Time	34th St Westbound					Wirt Rd Northbound					34th St Eastbound					Int
	T	L	U	App	Ped*	R	L	U	App	Ped*	R	T	U	App	Ped*	
2019-02-05 7:00AM	303	321	0	624	0	258	160	0	418	0	224	426	1	651	1	1693
8:00AM	247	387	0	634	2	242	105	0	347	0	201	348	0	549	1	1530
4:00PM	447	372	0	819	0	448	262	0	710	1	257	334	0	591	4	2120
5:00PM	462	363	0	825	1	460	317	2	779	0	242	380	0	622	1	2226
Total	1459	1443	0	2902	3	1408	844	2	2254	1	924	1488	1	2413	7	7569
% Approach	50.3%	49.7%	0%	-	-	62.5%	37.4%	0.1%	-	-	38.3%	61.7%	0%	-	-	-
% Total	19.3%	19.1%	0%	38.3%	-	18.6%	11.2%	0%	29.8%	-	12.2%	19.7%	0%	31.9%	-	-
Lights	1393	1417	0	2810	-	1374	826	2	2202	-	897	1408	1	2306	-	7318
% Lights	95.5%	98.2%	0%	96.8%	-	97.6%	97.9%	100%	97.7%	-	97.1%	94.6%	100%	95.6%	-	96.7%
Articulated Trucks	15	1	0	16	-	3	3	0	6	-	1	24	0	25	-	47
% Articulated Trucks	1.0%	0.1%	0%	0.6%	-	0.2%	0.4%	0%	0.3%	-	0.1%	1.6%	0%	1.0%	-	0.6%
Buses and Single-Unit Trucks	51	25	0	76	-	31	15	0	46	-	26	55	0	81	-	203
% Buses and Single-Unit Trucks	3.5%	1.7%	0%	2.6%	-	2.2%	1.8%	0%	2.0%	-	2.8%	3.7%	0%	3.4%	-	2.7%
Bicycles on Road	0	0	0	0	-	0	0	0	0	-	0	1	0	1	-	1
% Bicycles on Road	0%	0%	0%	0%	-	0%	0%	0%	0%	-	0%	0.1%	0%	0%	-	0%
Pedestrians	-	-	-	-	2	-	-	-	-	1	-	-	-	-	7	-
% Pedestrians	-	-	-	-	66.7%	-	-	-	-	100%	-	-	-	-	100%	-
Bicycles on Crosswalk	-	-	-	-	1	-	-	-	-	0	-	-	-	-	0	-
% Bicycles on Crosswalk	-	-	-	-	33.3%	-	-	-	-	0%	-	-	-	-	0%	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)

All Movements

Location: 29.818101, -95.483482

Provided by: C. J. Hensch & Associates Inc.
5215 Sycamore Ave., Pasadena, TX, 77503, US

Time	Hempstead Rd Southbound					34th St Westbound					Hempstead Rd Northbound					34th St Eastbound					Int				
	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T	L	U	App	Ped*	R	T		L	U	App	Ped*
2019-02-05 7:00AM	212	743	121	0	1076	4	120	370	45	0	535	0	39	367	78	0	484	2	162	336	144	0	642	0	2737
8:00AM	227	559	108	0	894	1	116	326	43	1	486	0	53	391	75	0	519	0	139	310	111	0	560	1	2459
4:00PM	184	399	107	0	690	2	161	424	30	3	618	1	49	710	192	0	951	4	89	433	206	0	728	0	2987
5:00PM	175	448	109	0	732	4	169	437	39	1	646	0	58	707	192	0	957	4	140	455	209	0	804	3	3139
Total	798	2149	445	0	3392	11	566	1557	157	5	2285	1	199	2175	537	0	2911	10	530	1534	670	0	2734	4	11322
% Approach	23.5%	63.4%	13.1%	0%	-	-	24.8%	68.1%	6.9%	0.2%	-	-	6.8%	74.7%	18.4%	0%	-	-	19.4%	56.1%	24.5%	0%	-	-	-
% Total	7.0%	19.0%	3.9%	0%	30.0%	-	5.0%	13.8%	1.4%	0%	20.2%	-	1.8%	19.2%	4.7%	0%	25.7%	-	4.7%	13.5%	5.9%	0%	24.1%	-	-
Lights	784	2025	416	0	3225	-	540	1496	147	5	2188	-	182	2058	519	0	2759	-	499	1476	659	0	2634	-	10806
% Lights	98.2%	94.2%	93.5%	0%	95.1%	-	95.4%	96.1%	93.6%	100%	95.8%	-	91.5%	94.6%	96.6%	0%	94.8%	-	94.2%	96.2%	98.4%	0%	96.3%	-	95.4%
Articulated Trucks	2	27	11	0	40	-	4	11	1	0	16	-	6	17	4	0	27	-	13	16	1	0	30	-	113
% Articulated Trucks	0.3%	1.3%	2.5%	0%	1.2%	-	0.7%	0.7%	0.6%	0%	0.7%	-	3.0%	0.8%	0.7%	0%	0.9%	-	2.5%	1.0%	0.1%	0%	1.1%	-	1.0%
Buses and Single-Unit Trucks	12	97	18	0	127	-	22	50	9	0	81	-	11	100	14	0	125	-	18	42	10	0	70	-	403
% Buses and Single-Unit Trucks	1.5%	4.5%	4.0%	0%	3.7%	-	3.9%	3.2%	5.7%	0%	3.5%	-	5.5%	4.6%	2.6%	0%	4.3%	-	3.4%	2.7%	1.5%	0%	2.6%	-	3.6%
Bicycles on Road	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0
% Bicycles on Road	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	-	0%
Pedestrians	-	-	-	-	-	9	-	-	-	-	-	1	-	-	-	-	-	9	-	-	-	-	-	-	4
% Pedestrians	-	-	-	-	-	81.8%	-	-	-	-	-	100%	-	-	-	-	-	90.0%	-	-	-	-	-	-	100%
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	-	0
% Bicycles on Crosswalk	-	-	-	-	-	18.2%	-	-	-	-	-	0%	-	-	-	-	-	10.0%	-	-	-	-	-	-	0%

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road)
 Movements
 Location: 29.819316, -95.473772

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave., Pasadena, TX, 77503, US

Direction	Antoine Dr Southbound					34th St Westbound					Antoine Dr Northbound					34th St Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2019-05-21 7:00AM	154	1012	17	0	1183	27	360	183	0	570	142	291	23	0	456	46	359	64	0	469	2678
8:00AM	192	754	23	0	969	21	294	179	0	494	135	272	31	2	440	36	326	76	3	441	2344
4:00PM	103	450	26	2	581	43	435	161	0	639	208	696	26	0	930	38	398	149	1	586	2736
5:00PM	90	457	27	2	576	44	428	161	0	633	202	796	31	0	1029	43	443	164	0	650	2888
Total	539	2673	93	4	3309	135	1517	684	0	2336	687	2055	111	2	2855	163	1526	453	4	2146	10646
% Approach	16.3%	80.8%	2.8%	0.1%	-	5.8%	64.9%	29.3%	0%	-	24.1%	72.0%	3.9%	0.1%	-	7.6%	71.1%	21.1%	0.2%	-	-
% Total	5.1%	25.1%	0.9%	0%	31.1%	1.3%	14.2%	6.4%	0%	21.9%	6.5%	19.3%	1.0%	0%	26.8%	1.5%	14.3%	4.3%	0%	20.2%	-
Lights	529	2584	91	4	3208	130	1462	624	0	2216	649	1974	106	2	2731	151	1434	434	4	2023	10178
% Lights	98.1%	96.7%	97.8%	100%	96.9%	96.3%	96.4%	91.2%	0%	94.9%	94.5%	96.1%	95.5%	100%	95.7%	92.6%	94.0%	95.8%	100%	94.3%	95.6%
Articulated Trucks	3	8	0	0	11	1	6	11	0	18	11	7	0	0	18	1	19	4	0	24	71
% Articulated Trucks	0.6%	0.3%	0%	0%	0.3%	0.7%	0.4%	1.6%	0%	0.8%	1.6%	0.3%	0%	0%	0.6%	0.6%	1.2%	0.9%	0%	1.1%	0.7%
Buses and Single-Unit Trucks	7	81	2	0	90	4	49	49	0	102	27	74	4	0	105	11	73	15	0	99	396
% Buses and Single-Unit Trucks	1.3%	3.0%	2.2%	0%	2.7%	3.0%	3.2%	7.2%	0%	4.4%	3.9%	3.6%	3.6%	0%	3.7%	6.7%	4.8%	3.3%	0%	4.6%	3.7%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	1
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0.9%	0%	0%	0%	0%	0%	0%	0%	0%
Pedestrians	-	-	-	-	51	-	-	-	-	14	-	-	-	-	23	-	-	-	-	61	61
Pedestrians	-	-	-	-	-100%	-	-	-	-	-100%	-	-	-	-	-100%	-	-	-	-	-100%	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road, Bicycles on Crosswalk)
 Movements
 Location: 29.819449, -95.469224

Provided by: C. J. Hensch & Associates Inc.
 5215 Sycamore Ave., Pasadena, TX, 77503, US

Direction	SBFR US 290 Southbound					34th St Westbound					SBFR US 290 Northbound					34th St Eastbound					Int
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	
2019-02-05 7:00AM	7	378	53	14	452	0	643	171	0	814	0	0	0	0	0	183	338	0	0	521	1787
8:00AM	18	308	56	18	400	0	553	172	0	725	0	0	0	0	0	207	378	0	0	585	1710
4:00PM	10	208	75	26	319	0	622	119	0	741	0	0	0	0	0	177	679	0	0	856	1916
5:00PM	5	186	78	24	293	0	726	105	0	831	0	0	0	0	0	168	724	0	0	892	2016
Total	40	1080	262	82	1464	0	2544	567	0	3111	0	0	0	0	0	735	2119	0	0	2854	7429
% Approach	2.7%	73.8%	17.9%	5.6%	-	0%	81.8%	18.2%	0%	-	0%	0%	0%	0%	-	25.8%	74.2%	0%	0%	-	-
% Total	0.5%	14.5%	3.5%	1.1%	19.7%	0%	34.2%	7.6%	0%	41.9%	0%	0%	0%	0%	0%	9.9%	28.5%	0%	0%	38.4%	-
Lights	37	1036	254	80	1407	0	2428	551	0	2979	0	0	0	0	0	676	2054	0	0	2730	7116
% Lights	92.5%	95.9%	96.9%	97.6%	96.1%	0%	95.4%	97.2%	0%	95.8%	0%	0%	0%	0%	-	92.0%	96.9%	0%	0%	95.7%	95.8%
Articulated Trucks	0	15	4	0	19	0	21	3	0	24	0	0	0	0	0	22	7	0	0	29	72
% Articulated Trucks	0%	1.4%	1.5%	0%	1.3%	0%	0.8%	0.5%	0%	0.8%	0%	0%	0%	0%	-	3.0%	0.3%	0%	0%	1.0%	1.0%
Buses and Single-Unit Trucks	3	29	4	2	38	0	95	13	0	108	0	0	0	0	0	37	57	0	0	94	240
% Buses and Single-Unit Trucks	7.5%	2.7%	1.5%	2.4%	2.6%	0%	3.7%	2.3%	0%	3.5%	0%	0%	0%	0%	-	5.0%	2.7%	0%	0%	3.3%	3.2%
Bicycles on Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-	0%	0%	0%	0%	0%	0%
Pedestrians	-	-	-	-	14	-	-	-	-	0	-	-	-	-	7	-	-	-	-	0	0
% Pedestrians	-	-	-	-	-87.5%	-	-	-	-	-	-	-	-	-	-77.8%	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	0	-	-	-	-	2	-	-	-	-	0	0
Bicycles on Crosswalk	-	-	-	-	-12.5%	-	-	-	-	-	-	-	-	-	-22.2%	-	-	-	-	-	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

All Classes (Lights, Articulated Trucks, Buses and Single-Unit Trucks, Pedestrians, Bicycles on Road,
 Bicycles on Crosswalk)
 All Movements
 Location: 29.819405, -95.468034

Provided by: C. J. Hensch & Associates
 Inc.
 5215 Sycamore Ave.,
 Pasadena, TX, 77503, US

Date & Time	NBFR US 290 Southbound					34th St Westbound					NBFR US 290 Northbound					34th St Eastbound					Int		
	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App	R	T	L	U	App			
2019-02-05 7:00AM	0	0	0	0	0	60	513	0	0	573	137	260	314	247	958	0	0	342	46	0	388	0	1919
8:00AM	0	0	0	0	0	81	448	0	0	529	159	236	271	182	848	3	0	392	51	0	443	0	1820
4:00PM	0	0	0	0	0	137	445	0	0	582	281	573	316	147	1317	11	0	641	116	0	757	0	2656
5:00PM	0	0	0	0	0	134	462	0	0	596	306	694	376	148	1524	12	0	646	149	0	795	0	2915
Total	0	0	0	0	0	412	1868	0	0	2280	883	1763	1277	724	4647	26	0	2021	362	0	2383	0	9310
% Approach	0%	0%	0%	0%	0%	18.1%	81.9%	0%	0%	24.5%	19.0%	37.9%	27.5%	15.6%	-	0%	84.8%	15.2%	0%	-	-	-	-
% Total	0%	0%	0%	0%	0%	4.4%	20.1%	0%	0%	24.5%	9.5%	18.9%	13.7%	7.8%	49.9%	0%	21.7%	3.9%	0%	25.6%	-	-	-
Lights	0	0	0	0	0	399	1801	0	0	2200	871	1713	1199	701	4484	0	1960	354	0	2314	-	8998	-
% Lights	0%	0%	0%	0%	0%	96.8%	96.4%	0%	0%	96.5%	98.6%	97.2%	93.9%	96.8%	96.5%	0%	97.0%	97.8%	0%	97.1%	-	96.6%	-
Articulated Trucks	0	0	0	0	0	6	6	0	0	12	0	12	21	9	42	0	11	1	0	12	-	66	-
% Articulated Trucks	0%	0%	0%	0%	0%	1.5%	0.3%	0%	0%	0.5%	0%	0.7%	1.6%	1.2%	0.9%	0%	0.5%	0.3%	0%	0.5%	-	0.7%	-
Buses and Single-Unit Trucks	0	0	0	0	0	7	60	0	0	67	12	38	57	13	120	0	50	7	0	57	-	244	-
% Buses and Single-Unit Trucks	0%	0%	0%	0%	0%	1.7%	3.2%	0%	0%	2.9%	1.4%	2.2%	4.5%	1.8%	2.6%	0%	2.5%	1.9%	0%	2.4%	-	2.6%	-
Bicycles on Road	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	-	2	-
% Bicycles on Road	0%	0%	0%	0%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	0.1%	0%	0%	0%	0%	0%	0%	-	0%	-
Pedestrians	-	-	-	-	-	2	-	-	-	7	-	-	-	-	26	-	-	-	-	0	-	-	-
% Pedestrians	-	-	-	-	-	50.0%	-	-	-	100%	-	-	-	-	100%	-	-	-	-	-	-	-	-
Bicycles on Crosswalk	-	-	-	-	-	2	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	0	-
Bicycles on Crosswalk	-	-	-	-	-	50.0%	-	-	-	0%	-	-	-	-	0%	-	-	-	-	-	-	-	-

Pedestrians and Bicycles on Crosswalk. L: Left, R: Right, T: Thru, U: U-Turn

APPENDIX E

VISTRO TRAFFIC

MODEL OUTPUTS

AM PEAK HOUR	EXISTING 2019				PROPOSED 2019 (OPTIMIZED)				EXISTING 2040* (OPTIMIZED)				PROPOSED 2040* (OPTIMIZED)			
	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS
HAMMERLY BLVD AT BRITTMOORE RD	SB LEFT	0.507	37.1	D	SB LEFT	0.534	37.2	D	SB LEFT	0.632	42.7	D	SB LEFT	0.665	42.9	D
SBFR BW 8 AT HAMMERLY BLVD	EB RIGHT	0.782	47.8	D	EB RIGHT	0.780	47.3	D	SB LEFT	0.986	117.8	F	SB RIGHT	0.953	96.3	F
NBFR BW 8 AT HAMMERLY BLVD	WB RIGHT	0.604	37.1	C	WB RIGHT	0.629	33.9	D	NB RIGHT	0.762	57.3	E	NB RIGHT	0.761	57.2	E
GESSNER RD AT EMNORA LN	EB LEFT	0.573	29.9	C	EB LEFT	0.583	27.6	C	EB LEFT	0.749	40.9	D	EB LEFT	0.749	40.9	D
KEMPWOOD DR AT WIRT RD	WB LEFT	0.638	28.8	C	WB LEFT	0.638	28.8	C	WB LEFT	0.793	42.4	D	WB LEFT	0.793	42.4	D
HEMPSTEAD RD AT 34TH ST	SWB LEFT	0.501	35.5	D	SWB LEFT	0.549	31.9	C	SWB LEFT	0.623	40.0	D	SWB LEFT	0.683	41.1	D
W 34TH AT ANTOINE	EB LEFT	0.536	23.4	C	EB LEFT	0.569	25.3	C	NB LEFT	0.67	32.9	C	EB LEFT	0.569	27.3	C
SBFR US 290 AT 34TH ST	EB RIGHT	0.485	30.3	C	EB RIGHT	0.450	30.0	C	EB RIGHT	0.482	25.3	C	EB RIGHT	0.561	34.9	C
NBFR US 290 AT 34TH ST	NWB LEFT	0.307	29.9	C	NWB LEFT	0.307	29.9	C	EB THRU	0.518	32.4	C	EB THRU	0.518	32.3	C

PM PEAK HOUR	EXISTING 2019				PROPOSED 2019 (OPTIMIZED)				EXISTING 2040* (OPTIMIZED)				PROPOSED 2040* (OPTIMIZED)			
	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS	WORST MVMT	V/C	DELAY (S/VEH)	LOS
HAMMERLY BLVD AT BRITTMOORE RD	WB RIGHT	0.665	52.4	D	WB RIGHT	0.664	49.3	D	WB RIGHT	0.827	98.6	F	NB THRU	0.897	92.9	F
SBFR BW 8 AT HAMMERLY BLVD	EB RIGHT	0.765	51.5	D	EB RIGHT	0.744	42.8	D	SB RIGTH	0.977	108.3	F	SB RIGHT	0.996	101.8	F
NBFR BW 8 AT HAMMERLY BLVD	WB RIGHT	0.706	38.7	D	EB LEFT	0.706	33.2	C	NB RIGHT	0.897	72.9	E	NB RIGHT	0.897	72.5	E
GESSNER RD AT EMNORA LN	EB LEFT	0.547	27.8	C	EB LEFT	0.550	26.1	C	EB LEFT	0.715	40.8	D	EB LEFT	0.720	34.6	C
KEMPWOOD DR AT WIRT RD	WB LEFT	0.820	50.7	D	WB LEFT	0.820	50.6	D	WB LEFT	1.019	102.5	F	WB LEFT	1.019	102.5	F
HEMPSTEAD RD AT 34TH ST	SEB LEFT	0.548	37.3	D	SWB LEFT	0.662	39.2	D	SEB LEFT	0.697	48.6	D	SWB RIGHT	0.790	59.0	E
W 34TH AT ANTOINE	NB LEFT	0.479	23.2	C	NB LEFT	0.519	25.3	C	SB LEFT	0.597	32.4	C	NB LEFT	0.519	25	C
SBFR US 290 AT 34TH ST	WB THRU	0.493	29.3	C	WB THRU	0.471	38.4	D	WB THRU	0.532	39.5	D	WB THRU	0.586	54.5	D
NBFR US 290 AT 34TH ST	NWB LEFT	0.455	45.3	D	NWB LEFT	0.403	35.4	D	NWB LEFT	0.833	65.8	E	NWB LEFT	0.835	71.2	E

* ASSUMED COMPOUND YEARLY GROWTH RATE OF 1%

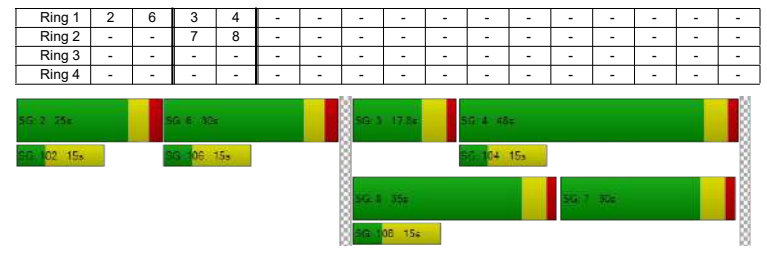
- PROPOSED ALTERING OF CHANNELIZED RIGHT-TURN RADII
- PROPOSED CONVERSION TO APPROACH GEOMETRY AND LANE ASSIGNMENTS
- PROPOSED CONVERSION TO LANE ASSIGNMENTS

HAMMERLY BOULEVARD AT BRITTMOORE ROAD

EXISTING GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Peak Hour Factor	0.9190	0.9190	1.0000	1.0000	0.9190	0.9190	0.9190	1.0000	0.9190	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.13	4.46	6.43	7.28	9.64	9.55	0.67	1.34	1.29	2.98	3.03	3.18
50th-Percentile Queue Length [ft/ln]	28.34	111.62	160.84	182.05	241.03	238.75	16.86	33.41	32.37	74.47	75.63	79.48
95th-Percentile Queue Length [veh/ln]	2.04	7.93	10.59	11.71	14.73	14.62	1.21	2.41	2.33	5.36	5.45	5.72
95th-Percentile Queue Length [ft/ln]	51.00	198.25	264.84	292.69	368.33	365.46	30.35	60.14	58.27	134.04	136.14	143.06
d_M, Delay for Movement [s/veh]	43.10	36.29	43.82	45.28	33.43	33.45	36.20	37.13	37.35	34.81	34.77	36.55
Movement LOS	D	D	D	D	C	C	D	D	D	C	C	D
d_A, Approach Delay [s/veh]	39.47			36.38			37.00			35.39		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.15											
Intersection LOS	D											
Intersection V/C	0.507											

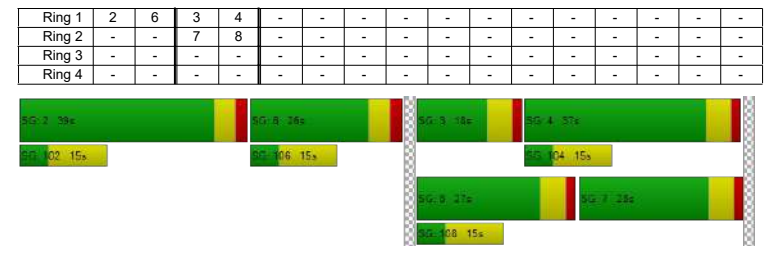


HAMMERLY BOULEVARD AT BRITTMOORE ROAD

PROPOSED GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Peak Hour Factor	0.9190	0.9190	1.0000	1.0000	0.9190	0.9190	0.9190	1.0000	0.9190	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.13	4.46	6.43	7.28	9.64	9.55	0.67	2.78	2.97	3.04	3.12	
50th-Percentile Queue Length [ft/ln]	28.34	111.62	160.84	182.05	241.02	238.75	16.86	69.43	74.18	75.93	78.07	
95th-Percentile Queue Length [veh/ln]	2.04	7.93	10.59	11.71	14.73	14.62	1.21	5.00	5.34	5.47	5.62	
95th-Percentile Queue Length [ft/ln]	51.01	198.25	264.83	292.69	368.33	365.45	30.35	124.97	133.52	136.68	140.52	
d_M, Delay for Movement [s/veh]	43.10	36.29	43.81	45.28	33.43	33.45	36.20	39.89	39.89	34.80	34.79	35.73
Movement LOS	D	D	D	D	C	C	D	D	D	C	C	D
d_A, Approach Delay [s/veh]	39.47			36.38			39.13			35.11		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	37.23											
Intersection LOS	D											
Intersection V/C	0.534											



HAMMERLY BOULEVARD AT BRITTMOORE ROAD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

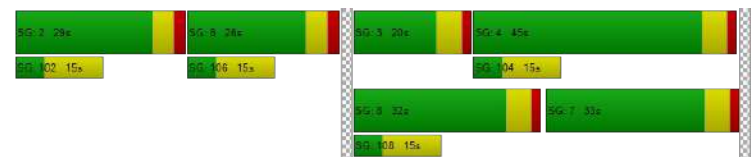
HAMMERLY BOULEVARD AT BRITTMOORE ROAD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

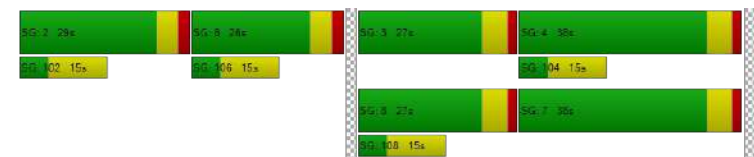
Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	468	324	360	967	30	36	93	54	264	91	181
Peak Hour Factor	0.9190	0.9190	1.0000	1.0000	0.9190	0.9190	0.9190	1.0000	0.9190	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.68	6.40	9.65	11.13	13.71	13.64	1.00	2.05	1.97	4.71	4.79	5.20
50th-Percentile Queue Length [ft/ln]	41.95	159.94	241.30	278.32	342.77	340.88	24.96	51.17	49.22	117.72	119.85	130.11
95th-Percentile Queue Length [veh/ln]	3.02	10.55	14.75	16.60	19.78	19.69	1.80	3.68	3.54	8.27	8.38	8.95
95th-Percentile Queue Length [ft/ln]	75.51	263.65	368.68	415.12	494.58	492.28	44.93	92.11	88.59	206.68	209.62	223.64
d_M, Delay for Movement [s/veh]	50.57	39.19	51.31	55.00	34.70	34.79	44.09	45.69	46.08	45.25	45.18	50.41
Movement LOS	D	D	D	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	44.35			39.76			45.48			46.98		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.72											
Intersection LOS	D											
Intersection V/C	0.632											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	44	376	260	289	777	24	29	75	43	212	73	145
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	468	324	360	967	30	36	93	54	264	91	181
Peak Hour Factor	0.9190	0.9190	1.0000	1.0000	0.9190	0.9190	0.9190	1.0000	0.9190	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.68	6.40	9.65	11.13	13.71	13.64	1.00	4.38	4.70	4.81	5.03	
50th-Percentile Queue Length [ft/ln]	41.97	159.99	241.31	278.28	342.77	340.88	24.97	109.57	117.47	120.23	125.69	
95th-Percentile Queue Length [veh/ln]	3.02	10.55	14.75	16.60	19.78	19.69	1.80	7.82	8.25	8.41	8.70	
95th-Percentile Queue Length [ft/ln]	75.54	263.71	368.69	415.07	494.58	492.28	44.95	195.41	206.34	210.15	217.61	
d_M, Delay for Movement [s/veh]	50.60	39.20	51.29	54.96	34.68	34.77	44.12	52.06	52.06	45.29	45.25	47.72
Movement LOS	D	D	D	D	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	44.35			39.74			50.44			46.10		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.86											
Intersection LOS	D											
Intersection V/C	0.665											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



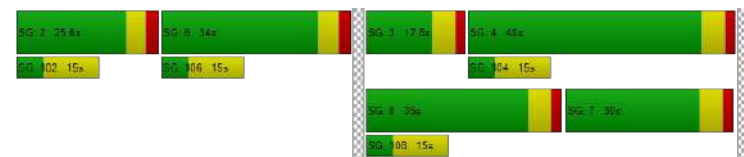
HAMMERLY BOULEVARD AT BRITTMOORE ROAD

EXISTING GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Peak Hour Factor	0.9660	0.9660	1.0000	1.0000	0.9660	0.9660	0.9660	1.0000	0.9660	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.92	14.24	11.74	7.64	7.09	7.05	0.37	1.14	1.13	3.96	4.02	14.06
50th-Percentile Queue Length [ft/ln]	23.02	355.91	293.43	190.98	177.17	176.22	9.19	28.62	28.28	99.07	100.61	351.45
95th-Percentile Queue Length [veh/ln]	1.66	20.42	17.36	12.17	11.45	11.40	0.66	2.06	2.04	7.13	7.24	20.21
95th-Percentile Queue Length [ft/ln]	41.43	510.61	433.90	304.30	286.31	285.07	16.55	51.51	50.91	178.33	181.10	505.18
d_M, Delay for Movement [s/veh]	64.19	53.52	55.99	67.70	33.60	33.60	51.33	52.33	52.43	40.29	40.28	77.34
Movement LOS	E	D	E	E	C	C	D	D	D	D	D	E
d_A, Approach Delay [s/veh]	54.45			42.88			52.21			60.21		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	52.45											
Intersection LOS	D											
Intersection V/C	0.665											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



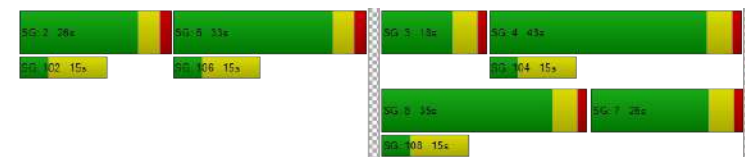
HAMMERLY BOULEVARD AT BRITTMOORE ROAD

PROPOSED GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Peak Hour Factor	0.9660	0.9660	1.0000	1.0000	0.9660	0.9660	0.9660	1.0000	0.9660	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.88	13.55	11.13	7.18	6.70	6.66	0.35	1.14	1.13	3.92	3.98	12.86
50th-Percentile Queue Length [ft/ln]	22.08	338.80	278.25	179.49	167.40	166.50	8.77	28.62	28.28	99.07	100.61	321.49
95th-Percentile Queue Length [veh/ln]	1.59	19.59	16.60	11.57	10.94	10.89	0.63	2.06	2.04	7.13	7.24	18.74
95th-Percentile Queue Length [ft/ln]	39.75	489.74	415.03	289.34	273.49	272.31	15.78	51.51	50.91	178.33	181.10	468.51
d_M, Delay for Movement [s/veh]	61.67	50.81	52.77	62.59	31.58	31.58	48.86	51.46	51.46	40.95	40.94	68.88
Movement LOS	E	D	D	E	C	C	D	D	D	D	D	E
d_A, Approach Delay [s/veh]	51.60			40.02			51.10			55.97		
Approach LOS	D			D			D			E		
d_I, Intersection Delay [s/veh]	49.32											
Intersection LOS	D											
Intersection V/C	0.664											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



HAMMERLY BOULEVARD AT BRITTMOORE ROAD

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

HAMMERLY BOULEVARD AT BRITTMOORE ROAD

PROPSOED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

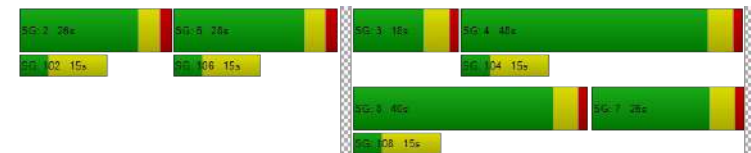
Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	985	416	255	649	11	15	67	22	291	68	418
Peak Hour Factor	0.9660	0.9660	1.0000	1.0000	0.9660	0.9660	0.9660	1.0000	0.9660	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.22	26.32	20.85	10.55	9.81	9.76	0.54	1.56	1.54	5.52	5.61	23.84
50th-Percentile Queue Length [ft/ln]	30.60	657.93	521.17	263.83	245.25	243.88	13.47	38.95	38.38	137.89	140.26	596.10
95th-Percentile Queue Length [veh/ln]	2.20	38.26	29.02	15.88	14.95	14.88	0.97	2.80	2.76	9.37	9.49	35.16
95th-Percentile Queue Length [ft/ln]	55.09	956.46	725.41	397.02	373.66	371.94	24.24	70.11	69.09	234.18	237.37	878.94
d_M, Delay for Movement [s/veh]	68.89	139.89	107.61	74.54	36.18	36.18	56.32	57.66	57.79	45.07	45.06	164.49
Movement LOS	E	F	F	E	D	D	E	E	E	D	D	F
d_A, Approach Delay [s/veh]	129.20			46.61			57.48			109.31		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	98.63											
Intersection LOS	F											
Intersection V/C	0.827											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Name	Brittmoore Rd			Brittmoore Rd			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三			三三			三三			三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	14.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	100.00	120.00	100.00	100.00	120.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	25	791	334	205	521	9	12	54	18	234	55	336
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	985	416	255	649	11	15	67	22	291	68	418
Peak Hour Factor	0.9660	0.9660	1.0000	1.0000	0.9660	0.9660	0.9660	1.0000	0.9660	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	1.22	26.19	20.79	10.56	9.80	9.74	0.54	1.56	1.54	5.53	5.59	21.87
50th-Percentile Queue Length [ft/ln]	30.59	654.76	519.73	263.98	244.92	243.55	13.46	38.95	38.38	138.34	139.83	546.86
95th-Percentile Queue Length [veh/ln]	2.20	38.03	28.89	15.89	14.93	14.86	0.97	2.80	2.76	9.39	9.47	31.07
95th-Percentile Queue Length [ft/ln]	55.06	950.80	722.18	397.21	373.25	371.52	24.22	70.11	69.09	234.79	236.80	776.74
d_M, Delay for Movement [s/veh]	68.82	137.97	106.35	74.67	36.06	36.06	56.24	60.11	60.11	45.14	45.11	125.00
Movement LOS	E	F	F	E	D	D	E	E	E	D	D	F
d_A, Approach Delay [s/veh]	127.50			46.56			59.53			88.10		
Approach LOS	F			D			E			F		
d_I, Intersection Delay [s/veh]	92.92											
Intersection LOS	F											
Intersection V/C	0.825											

Ring 1	2	6	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	-	7	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

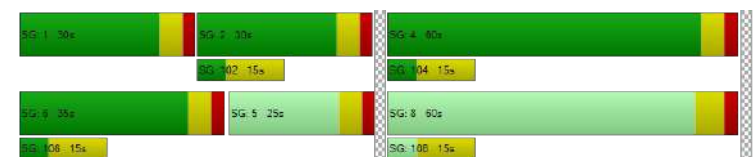


BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9780	0.9780	1.0000	1.0000	1.0000	1.0000	0.9780	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]				24.68	22.72	22.44	3.02	10.00	6.86	5.82		
50th-Percentile Queue Length [ft/ln]				617.03	567.89	560.94	75.38	250.09	171.44	145.40		
95th-Percentile Queue Length [veh/ln]				32.83	30.53	30.21	5.43	15.19	11.15	9.77		
95th-Percentile Queue Length [ft/ln]				820.72	763.30	755.15	135.68	379.77	278.81	244.28		
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	42.12	42.89	44.15	0.00	44.18	63.79	59.78	56.22	0.00
Movement LOS				D	D	D		D	E	E	E	
d_A, Approach Delay [s/veh]	0.00			42.92			51.86			58.11		
Approach LOS	A			D			D			E		
d_I, Intersection Delay [s/veh]	47.85											
Intersection LOS	D											
Intersection V/C	0.782											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

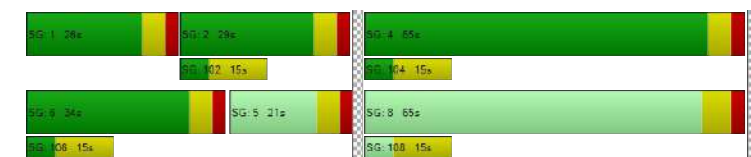


BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9780	0.9780	1.0000	1.0000	1.0000	1.0000	0.9780	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]				24.68	22.71	22.43	3.01	10.00	6.64	5.77		
50th-Percentile Queue Length [ft/ln]				616.96	567.83	560.87	75.37	250.03	165.93	144.22		
95th-Percentile Queue Length [veh/ln]				32.83	30.53	30.20	5.43	15.19	10.86	9.71		
95th-Percentile Queue Length [ft/ln]				820.64	763.23	755.07	135.67	379.69	271.55	242.69		
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	42.11	42.88	44.14	0.00	44.18	63.76	56.00	55.34	0.00
Movement LOS				D	D	D		D	E	E	E	
d_A, Approach Delay [s/veh]	0.00			42.91			51.84			55.69		
Approach LOS	A			D			D			E		
d_I, Intersection Delay [s/veh]	47.33											
Intersection LOS	D											
Intersection V/C	0.780											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0	
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00	
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Factor	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	0	0	0	187	2242	187	0	533	342	488	441	0	
Peak Hour Factor	1.0000	1.0000	1.0000	0.9780	0.9780	1.0000	1.0000	1.0000	1.0000	0.9780	1.0000	1.0000	
50th-Percentile Queue Length [veh/ln]				59.10	52.05	52.77	4.77		18.95		11.02		0.00
50th-Percentile Queue Length [ft/ln]				1477.4	1301.1	1319.1	119.36		473.70		275.58		0.00
95th-Percentile Queue Length [veh/ln]				86.82	73.45	75.48	8.36		26.14		16.47		0.00
95th-Percentile Queue Length [ft/ln]				2170.4	1836.3	1887.1	208.95		653.52		411.70		0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	204.45	172.61	165.66	0.00	53.44	109.91	74.03	0.00	0.00	
Movement LOS				F	F	F			D	F	E	A	
d_A, Approach Delay [s/veh]	0.00			174.40			75.51			39.30			
Approach LOS	A			F			E			D			
d_I, Intersection Delay [s/veh]	126.79												
Intersection LOS	F												
Intersection V/C	1.059												

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



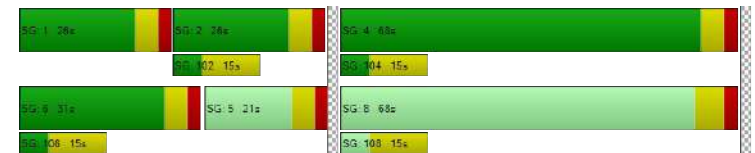
BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0	
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00	
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	0	0	0	150	1801	150	0	428	275	392	354	0	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Factor	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	0	0	0	187	2242	187	0	533	342	488	441	0	
Peak Hour Factor	1.0000	1.0000	1.0000	0.9780	0.9780	1.0000	1.0000	1.0000	1.0000	0.9780	1.0000	1.0000	
50th-Percentile Queue Length [veh/ln]				48.49	44.18	44.96	4.39		16.70		11.38		8.94
50th-Percentile Queue Length [ft/ln]				1212.1	1104.5	1123.8	109.65		417.56		284.53		223.59
95th-Percentile Queue Length [veh/ln]				65.53	59.91	61.97	7.82		23.40		16.91		13.85
95th-Percentile Queue Length [ft/ln]				1638.1	1497.8	1549.1	195.51		585.12		422.85		346.21
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	108.46	110.65	118.28	0.00	48.72	91.00	85.10	68.37	0.00	
Movement LOS				F	F	F			D	F	F	E	
d_A, Approach Delay [s/veh]	0.00			111.03			65.25			77.25			
Approach LOS	A			F			E			E			
d_I, Intersection Delay [s/veh]	95.02												
Intersection LOS	F												
Intersection V/C	0.946												

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2019 SCENARIO
PM PEAK HOUR

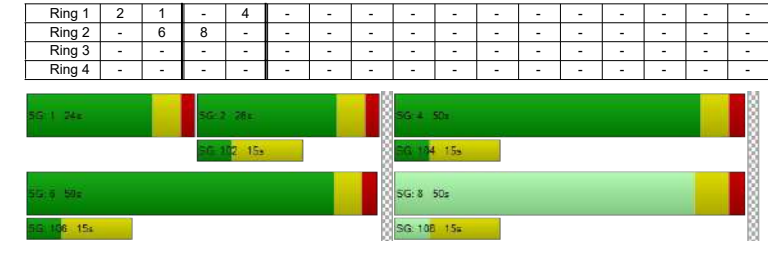
Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9550	0.9550	1.0000	1.0000	1.0000	1.0000	0.9550	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]				27.94	25.69	25.52	3.99	10.88	4.71	8.16		
50th-Percentile Queue Length [ft/ln]				698.44	642.30	637.95	99.82	271.94	117.85	203.89		
95th-Percentile Queue Length [veh/ln]				36.61	34.00	33.80	7.19	16.29	8.27	12.84		
95th-Percentile Queue Length [ft/ln]				915.16	850.12	845.06	179.67	407.16	206.87	320.97		
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	45.86	46.85	49.04	0.00	47.64	69.01	58.57	63.68	0.00
Movement LOS				D	D	D		D	E	E	E	
d_A, Approach Delay [s/veh]	0.00			46.96			55.04			61.73		
Approach LOS	A			D			E			E		
d_I, Intersection Delay [s/veh]	51.52											
Intersection LOS	D											
Intersection V/C	0.765											



BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2019 SCENARIO
PM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				⌈⌋⌈⌋			⌈⌋⌈⌋⌈⌋			⌈⌋⌈⌋		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9550	0.9550	1.0000	1.0000	1.0000	1.0000	0.9550	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]				26.34	24.22	24.05	3.82	10.33	3.03	5.18		
50th-Percentile Queue Length [ft/ln]				658.53	605.59	601.33	95.46	258.20	75.65	129.41		
95th-Percentile Queue Length [veh/ln]				34.76	32.30	32.10	6.87	15.60	5.45	8.91		
95th-Percentile Queue Length [ft/ln]				868.96	807.38	802.41	171.83	389.97	136.18	222.69		
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	42.87	43.78	45.82	0.00	45.67	65.21	28.00	29.11	0.00
Movement LOS				D	D	D		D	E	C	C	
d_A, Approach Delay [s/veh]	0.00			43.88			52.44			28.69		
Approach LOS	A			D			D			C		
d_I, Intersection Delay [s/veh]	42.80											
Intersection LOS	D											
Intersection V/C	0.744											



BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration				⇄⇄⇄						⇄⇄⇄			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0	
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00	
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Factor	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	0	0	0	258	2144	258	0	650	345	326	553	0	
Peak Hour Factor	1.0000	1.0000	1.0000	0.9550	0.9550	1.0000	1.0000	1.0000	1.0000	0.9550	1.0000	1.0000	
50th-Percentile Queue Length [veh/ln]				52.94	47.93	49.66	5.47		16.96		7.08		11.44
50th-Percentile Queue Length [ft/ln]				1323.4	1198.1	1241.4	136.67		423.95		176.99		286.01
95th-Percentile Queue Length [veh/ln]				73.19	66.34	70.29	9.30		23.71		11.44		16.99
95th-Percentile Queue Length [ft/ln]				1829.7	1658.3	1757.3	232.53		592.78		286.08		424.68
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	128.99	131.71	144.63	0.00	49.74	91.84	72.90	68.91	0.00	
Movement LOS				F	F	F		D	F	E	E		
d_A, Approach Delay [s/veh]	0.00			132.65			64.33			70.43			
Approach LOS	A			F			E			E			
d_I, Intersection Delay [s/veh]	106.14												
Intersection LOS	F												
Intersection V/C	0.961												

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



BELTWAY 8 SOUTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	SBFR BW 8			SBFR BW 8			Hammerly Blvd			Hammerly Blvd			
Approach	Northbound			Southbound			Eastbound			Westbound			
Lane Configuration				⇄⇄⇄						⇄⇄⇄			
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	1	0	0	0	
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	100.00	
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	0	0	0	207	1722	207	0	522	277	262	444	0	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Factor	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	0	0	0	258	2144	258	0	650	345	326	553	0	
Peak Hour Factor	1.0000	1.0000	1.0000	0.9550	0.9550	1.0000	1.0000	1.0000	1.0000	0.9550	1.0000	1.0000	
50th-Percentile Queue Length [veh/ln]				51.28	46.43	48.18	5.36		16.55		6.21		11.09
50th-Percentile Queue Length [ft/ln]				1282.0	1160.7	1204.3	134.03		413.67		155.31		277.13
95th-Percentile Queue Length [veh/ln]				70.35	63.76	67.71	9.16		23.22		10.30		16.55
95th-Percentile Queue Length [ft/ln]				1758.7	1594.1	1692.8	228.97		580.45		257.50		413.64
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	119.75	122.44	134.99	0.00	48.74	89.02	58.10	65.91	0.00	
Movement LOS				F	F	F		D	F	E	E		
d_A, Approach Delay [s/veh]	0.00			123.35			62.71			62.93			
Approach LOS	A			F			E			E			
d_I, Intersection Delay [s/veh]	98.82												
Intersection LOS	F												
Intersection V/C	0.952												

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-

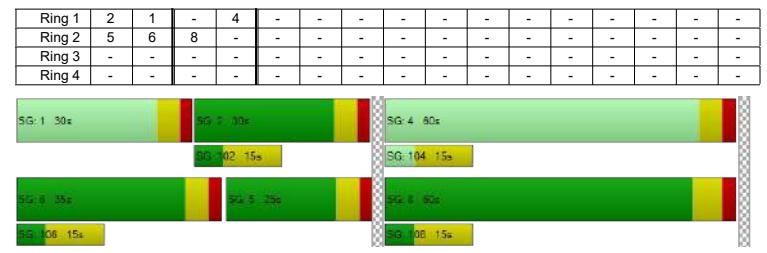


BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Peak Hour Factor	0.9670	0.9670	0.9670	1.0000	1.0000	1.0000	0.9670	0.9670	1.0000	1.0000	0.9670	0.9670
50th-Percentile Queue Length [veh/ln]	18.88	17.40	16.99				1.86	4.55	3.29	4.91		
50th-Percentile Queue Length [ft/ln]	472.12	434.93	424.80				46.38	113.87	82.35	122.75		
95th-Percentile Queue Length [veh/ln]	26.01	24.24	23.75				3.34	8.06	5.93	8.54		
95th-Percentile Queue Length [ft/ln]	650.30	605.94	593.81				83.48	201.38	148.23	213.60		
d_M, Delay for Movement [s/veh]	30.89	31.46	32.84	0.00	0.00	0.00	28.74	30.56	0.00	0.00	41.40	46.46
Movement LOS	C	C	C				C	C			D	D
d_A, Approach Delay [s/veh]	31.56			0.00			30.01			42.69		
Approach LOS	C			A			C			D		
d_I, Intersection Delay [s/veh]	33.57											
Intersection LOS	C											
Intersection V/C	0.604											

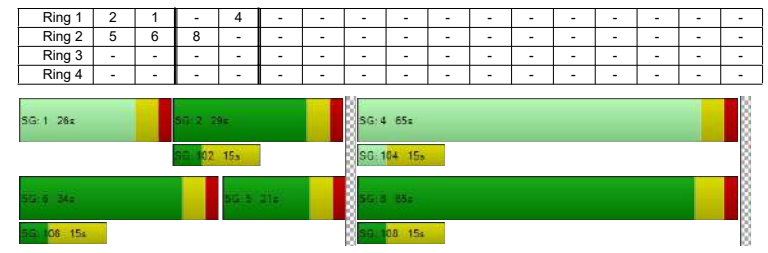


BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Peak Hour Factor	0.9670	0.9670	0.9670	1.0000	1.0000	1.0000	0.9670	0.9670	1.0000	1.0000	0.9670	0.9670
50th-Percentile Queue Length [veh/ln]	18.88	17.40	16.99				1.86	4.56	3.29	4.91		
50th-Percentile Queue Length [ft/ln]	472.12	434.93	424.80				46.38	113.88	82.35	122.74		
95th-Percentile Queue Length [veh/ln]	26.01	24.24	23.75				3.34	8.06	5.93	8.54		
95th-Percentile Queue Length [ft/ln]	650.30	605.94	593.80				83.48	201.38	148.22	213.59		
d_M, Delay for Movement [s/veh]	30.89	31.46	32.84	0.00	0.00	0.00	35.30	30.56	0.00	0.00	41.40	46.45
Movement LOS	C	C	C				D	C			D	D
d_A, Approach Delay [s/veh]	31.56			0.00			32.01			42.68		
Approach LOS	C			A			C			D		
d_I, Intersection Delay [s/veh]	33.92											
Intersection LOS	C											
Intersection V/C	0.629											



BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	2003	310	0	0	0	227	514	0	0	639	218
Peak Hour Factor	0.9670	0.9670	0.9670	1.0000	1.0000	1.0000	0.9670	0.9670	1.0000	1.0000	0.9670	0.9670
50th-Percentile Queue Length [veh/ln]	38.02	34.38	35.75				3.18	7.94			5.38	8.26
50th-Percentile Queue Length [ft/ln]	950.60	859.48	893.72				79.48	198.60			134.55	206.58
95th-Percentile Queue Length [veh/ln]	48.32	44.00	47.06				5.72	12.57			9.19	12.98
95th-Percentile Queue Length [ft/ln]	1208.0	1099.8	1176.4				143.06	314.16			229.66	324.44
d_M, Delay for Movement [s/veh]	59.01	61.47	71.43	0.00	0.00	0.00	39.65	42.74	0.00	0.00	52.71	62.95
Movement LOS	E	E	E				D	D			D	E
d_A, Approach Delay [s/veh]	62.41			0.00			41.80			55.31		
Approach LOS	E			A			D			E		
d_I, Intersection Delay [s/veh]	57.30											
Intersection LOS	E											
Intersection V/C	0.762											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



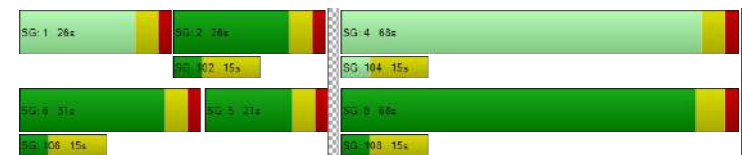
BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	217	1609	249	0	0	0	182	413	0	0	513	175
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	270	2003	310	0	0	0	227	514	0	0	639	218
Peak Hour Factor	0.9670	0.9670	0.9670	1.0000	1.0000	1.0000	0.9670	0.9670	1.0000	1.0000	0.9670	0.9670
50th-Percentile Queue Length [veh/ln]	38.00	34.32	35.72				3.18	7.94			5.38	8.26
50th-Percentile Queue Length [ft/ln]	949.99	858.04	893.01				79.48	198.61			134.51	206.52
95th-Percentile Queue Length [veh/ln]	48.27	43.93	47.00				5.72	12.57			9.18	12.97
95th-Percentile Queue Length [ft/ln]	1206.7	1098.2	1175.1				143.07	314.17			229.62	324.37
d_M, Delay for Movement [s/veh]	58.80	61.25	71.19	0.00	0.00	0.00	39.68	42.77	0.00	0.00	52.69	62.92
Movement LOS	E	E	E				D	D			D	E
d_A, Approach Delay [s/veh]	62.19			0.00			41.82			55.29		
Approach LOS	E			A			D			E		
d_I, Intersection Delay [s/veh]	57.16											
Intersection LOS	E											
Intersection V/C	0.761											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

EXISTING GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	228	1686	332	0	0	0	231	530	0	0	468	135
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	228	1686	332	0	0	0	231	530	0	0	468	135
Peak Hour Factor	0.9390	0.9390	0.9390	1.0000	1.0000	1.0000	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	24.14	22.08	22.60				2.99	7.66	3.59	4.39		
50th-Percentile Queue Length [ft/ln]	603.61	552.08	565.12				74.80	191.47	89.74	109.69		
95th-Percentile Queue Length [veh/ln]	32.20	29.79	30.40				5.39	12.20	6.46	7.82		
95th-Percentile Queue Length [ft/ln]	805.07	744.75	760.05				134.65	304.94	161.54	195.58		
d_M, Delay for Movement [s/veh]	34.14	35.28	39.32	0.00	0.00	0.00	36.69	40.10	0.00	0.00	48.46	51.91
Movement LOS	C	D	D				D	D			D	D
d_A, Approach Delay [s/veh]	35.76			0.00			39.06			49.23		
Approach LOS	D			A			D			D		
d_I, Intersection Delay [s/veh]	38.70											
Intersection LOS	D											
Intersection V/C	0.706											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



BELTWAY 8 NORTHBOUND FRONTAGE ROAD AT HAMMERLY BOULEVARD

PROPOSED GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	NBFR BW 8			NBFR BW 8			Hammerly Blvd			Hammerly Blvd		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	三三三						三三三			三三三		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	1
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	228	1686	332	0	0	0	231	530	0	0	468	135
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	228	1686	332	0	0	0	231	530	0	0	468	135
Peak Hour Factor	0.9390	0.9390	0.9390	1.0000	1.0000	1.0000	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	21.30	19.48	19.90				3.53	7.25	2.61	3.13		
50th-Percentile Queue Length [ft/ln]	532.47	487.01	497.55				88.32	181.29	65.29	78.13		
95th-Percentile Queue Length [veh/ln]	28.87	26.72	27.22				6.36	11.67	4.70	5.63		
95th-Percentile Queue Length [ft/ln]	721.69	667.97	680.46				158.98	291.70	117.53	140.63		
d_M, Delay for Movement [s/veh]	29.67	30.62	34.00	0.00	0.00	0.00	48.36	39.32	0.00	0.00	29.83	30.80
Movement LOS	C	C	C				D	D			C	C
d_A, Approach Delay [s/veh]	31.02			0.00			42.06			30.05		
Approach LOS	C			A			D			C		
d_I, Intersection Delay [s/veh]	33.19											
Intersection LOS	C											
Intersection V/C	0.706											

Ring 1	2	1	-	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



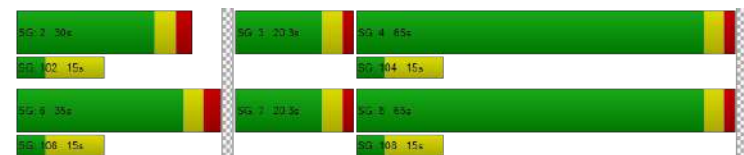
GESSNER ROAD AT EMNORA LANE

EXISTING GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Gessner Rd			Gessner Rd			Emnora Ln			Emnora Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔			↔↔↔			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
50th-Percentile Queue Length [veh/ln]	0.40	6.98	7.40	0.78	14.84	15.76	7.86			5.48		
50th-Percentile Queue Length [ft/ln]	9.96	174.59	185.01	19.52	371.10	394.05	196.61			137.06		
95th-Percentile Queue Length [veh/ln]	0.72	11.32	11.86	1.41	21.16	22.27	12.46			9.32		
95th-Percentile Queue Length [ft/ln]	17.93	282.94	296.54	35.13	529.06	556.83	311.58			233.06		
d_M, Delay for Movement [s/veh]	14.97	21.45	22.09	9.65	29.89	32.64	65.06	65.06	65.06	46.90	46.90	46.90
Movement LOS	B	C	C	A	C	C	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	21.25			29.33			65.06			46.90		
Approach LOS	C			C			E			D		
d_I, Intersection Delay [s/veh]	29.85											
Intersection LOS	C											
Intersection V/C	0.573											

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



GESSNER ROAD AT EMNORA LANE

PROPOSED GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Gessner Rd			Gessner Rd			Emnora Ln			Emnora Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔			↔↔↔			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
50th-Percentile Queue Length [veh/ln]	0.35	6.57	6.96	0.69	13.89	14.70	7.63			5.88		
50th-Percentile Queue Length [ft/ln]	8.85	164.23	173.96	17.31	347.37	367.41	190.84			146.92		
95th-Percentile Queue Length [veh/ln]	0.64	10.77	11.28	1.25	20.01	20.98	12.16			9.85		
95th-Percentile Queue Length [ft/ln]	15.93	269.31	282.12	31.16	500.20	524.58	304.12			246.32		
d_M, Delay for Movement [s/veh]	13.09	19.53	20.11	8.23	26.82	29.10	61.17	61.17	61.17	52.10	52.10	52.10
Movement LOS	B	B	C	A	C	C	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	19.34			26.28			61.17			52.10		
Approach LOS	B			C			E			D		
d_I, Intersection Delay [s/veh]	27.57											
Intersection LOS	C											
Intersection V/C	0.583											

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



CESSNER ROAD AT EMNORA LANE

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Gessner Rd			Gessner Rd			Emnora Ln			Emnora Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔			↔↔↔			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	1165	50	83	1815	189	107	35	98	78	50	75
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
50th-Percentile Queue Length [veh/ln]	0.48	9.24	9.82	0.94	22.97	26.32	11.38			7.71		
50th-Percentile Queue Length [ft/ln]	11.94	230.92	245.52	23.61	574.15	657.95	284.48			192.85		
95th-Percentile Queue Length [veh/ln]	0.86	14.22	14.96	1.70	30.83	34.73	16.91			12.27		
95th-Percentile Queue Length [ft/ln]	21.49	355.52	374.01	42.50	770.64	868.29	422.78			306.72		
d_M, Delay for Movement [s/veh]	22.94	23.18	24.15	11.24	45.62	54.52	84.53	84.53	84.53	56.94	56.94	56.94
Movement LOS	C	C	C	B	D	D	F	F	F	E	E	E
d_A, Approach Delay [s/veh]	23.21			45.06			84.53			56.94		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	40.94											
Intersection LOS	D											
Intersection V/C	0.749											

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



CESSNER ROAD AT EMNORA LANE

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Gessner Rd			Gessner Rd			Emnora Ln			Emnora Ln		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	↔↔↔			↔↔↔			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.00	100.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	34	936	40	67	1458	152	86	28	79	63	40	60
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	42	1165	50	83	1815	189	107	35	98	78	50	75
Peak Hour Factor	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750	0.8750
50th-Percentile Queue Length [veh/ln]	0.48	9.24	9.82	0.94	22.97	26.32	11.38			7.71		
50th-Percentile Queue Length [ft/ln]	11.94	230.92	245.52	23.61	574.15	657.95	284.48			192.85		
95th-Percentile Queue Length [veh/ln]	0.86	14.22	14.96	1.70	30.83	34.73	16.91			12.27		
95th-Percentile Queue Length [ft/ln]	21.49	355.52	374.01	42.50	770.64	868.29	422.78			306.72		
d_M, Delay for Movement [s/veh]	22.94	23.18	24.15	11.24	45.62	54.52	84.53	84.53	84.53	56.94	56.94	56.94
Movement LOS	C	C	C	B	D	D	F	F	F	E	E	E
d_A, Approach Delay [s/veh]	23.21			45.06			84.53			56.94		
Approach LOS	C			D			F			E		
d_I, Intersection Delay [s/veh]	40.94											
Intersection LOS	D											
Intersection V/C	0.749											

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



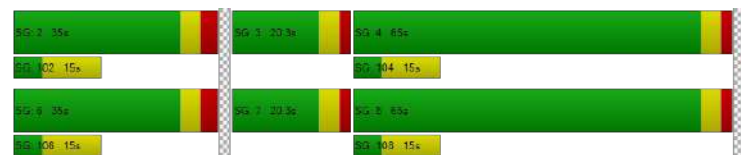
GESSNER ROAD AT EMNORA LANE

EXISTING GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Gessner Rd				Gessner Rd				Emnora Ln			Emnora Ln		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration	三三三三				三三三三				+			+		
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.	100.	100.	100.	110.	100.	100.	100.	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Base Volume Input [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
50th-Percentile Queue Length [veh/ln]	0.85	13.05	14.07	0.94	9.94	10.31	5.98			5.30				
50th-Percentile Queue Length [ft/ln]	21.33	326.24	351.66	23.46	248.51	257.80	149.57			132.40				
95th-Percentile Queue Length [veh/ln]	1.54	18.97	20.22	1.69	15.11	15.58	9.99			9.07				
95th-Percentile Queue Length [ft/ln]	38.39	474.35	505.43	42.22	377.78	389.46	249.85			226.75				
d_M, Delay for Movement [s/veh]	11.9	11.9	27.6	29.4	15.8	15.8	24.2	25.4	50.80	50.80	50.80	44.45	44.45	44.45
Movement LOS	B	B	C	C	B	B	C	C	D	D	D	D	D	D
d_A, Approach Delay [s/veh]	27.04				23.85				50.80			44.45		
Approach LOS	C				C				D			D		
d_I, Intersection Delay [s/veh]	27.83													
Intersection LOS	C													
Intersection V/C	0.547													

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



GESSNER ROAD AT EMNORA LANE

PROPOSED GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Gessner Rd				Gessner Rd				Emnora Ln			Emnora Ln		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration	三三三三				三三三三				+			+		
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.	100.	100.	100.	110.	100.	100.	100.	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Base Volume Input [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
50th-Percentile Queue Length [veh/ln]	0.76	12.24	13.16	0.83	9.34	9.68	6.33			5.51				
50th-Percentile Queue Length [ft/ln]	18.93	305.99	329.02	20.83	233.54	241.98	158.29			137.70				
95th-Percentile Queue Length [veh/ln]	1.36	17.98	19.11	1.50	14.35	14.78	10.46			9.36				
95th-Percentile Queue Length [ft/ln]	34.07	449.43	477.76	37.50	358.85	369.54	261.46			233.93				
d_M, Delay for Movement [s/veh]	10.3	10.3	25.0	26.5	13.8	13.8	22.0	23.0	56.74	56.74	56.74	47.94	47.94	47.94
Movement LOS	B	B	C	C	B	B	C	C	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	24.38				21.63				56.74			47.94		
Approach LOS	C				C				E			D		
d_I, Intersection Delay [s/veh]	26.10													
Intersection LOS	C													
Intersection V/C	0.550													

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



CESSNER ROAD AT EMNORA LANE

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Gessner Rd				Gessner Rd				Emnora Ln			Emnora Ln		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration	三三三三				三三三三				+			+		
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.	100.	100.	100.	110.	100.	100.	100.	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Base Volume Input [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	90	1996	72	4	102	1553	162	111	52	65	47	65	112
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
50th-Percentile Queue Length [veh/ln]	1.01	19.16	21.36	1.17	16.86	18.26	9.23			7.10				
50th-Percentile Queue Length [ft/ln]	25.20	479.12	534.09	29.18	421.43	456.57	230.86			177.40				
95th-Percentile Queue Length [veh/ln]	1.81	26.34	28.94	2.10	23.59	25.27	14.22			11.46				
95th-Percentile Queue Length [ft/ln]	45.36	658.60	723.60	52.53	589.77	631.79	355.45			286.61				
d_M, Delay for Movement [s/veh]	18.0	18.0	36.6	41.0	23.7	23.7	41.6	46.7	75.50	75.50	75.50	50.06	50.06	50.06
Movement LOS	B	B	D	D	C	C	D	D	E	E	E	D	D	D
d_A, Approach Delay [s/veh]	35.98				41.03				75.50			50.06		
Approach LOS	D				D				E			D		
d_I, Intersection Delay [s/veh]	40.79													
Intersection LOS	D													
Intersection V/C	0.715													

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



CESSNER ROAD AT EMNORA LANE

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Gessner Rd				Gessner Rd				Emnora Ln			Emnora Ln		
Approach	Northbound				Southbound				Eastbound			Westbound		
Lane Configuration	三三三三				三三三三				+			+		
Turning Movement	U-tu	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	1	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	110.	100.	100.	100.	110.	100.	100.	100.	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00				30.00				30.00			30.00		
Base Volume Input [veh/h]	7	72	1603	58	3	82	1247	130	89	42	52	38	52	90
Base Volume Adjustment Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.24	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	9	90	1996	72	4	102	1553	162	111	52	65	47	65	112
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.9650	0.9650	0.9650	0.9650	0.9650	0.9650
50th-Percentile Queue Length [veh/ln]	1.02	18.64	20.71	1.13	13.40	14.14	9.80			7.25				
50th-Percentile Queue Length [ft/ln]	25.43	466.06	517.85	28.31	334.95	353.39	244.94			181.15				
95th-Percentile Queue Length [veh/ln]	1.83	25.72	28.18	2.04	19.40	20.30	14.93			11.66				
95th-Percentile Queue Length [ft/ln]	45.78	643.08	704.45	50.95	485.02	507.54	373.28			291.52				
d_M, Delay for Movement [s/veh]	16.9	16.9	34.7	38.6	23.5	23.5	26.9	29.0	84.48	84.48	84.48	51.99	51.99	51.99
Movement LOS	B	B	C	D	C	C	C	C	F	F	F	D	D	D
d_A, Approach Delay [s/veh]	34.04				26.93				84.48			51.99		
Approach LOS	C				C				F			D		
d_I, Intersection Delay [s/veh]	34.61													
Intersection LOS	C													
Intersection V/C	0.720													

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



KEMPWOOD DRIVE AT WIRT ROAD

EXISTING GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			Kempwood Dr	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	0	155	264	1	412	231	340	318
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	155	264	1	412	231	340	318
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
50th-Percentile Queue Length [veh/ln]	2.65		5.14	7.13		5.95	8.37	1.37
50th-Percentile Queue Length [ft/ln]	66.35		128.62	178.23		148.78	209.30	34.28
95th-Percentile Queue Length [veh/ln]	4.78		8.86	11.51		9.95	13.12	2.47
95th-Percentile Queue Length [ft/ln]	119.44		221.61	287.70		248.81	327.93	61.71
d_M, Delay for Movement [s/veh]	25.18	25.18	29.47	30.35	30.60	32.13	44.22	8.71
Movement LOS	C	C	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	27.88			31.15			27.06	
Approach LOS	C			C			C	
d_I, Intersection Delay [s/veh]	28.79							
Intersection LOS	C							
Intersection V/C	0.638							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



KEMPWOOD DRIVE AT WIRT ROAD

PROPOSED GEOMETRY 2019 SCENARIO

AM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			Kempwood Dr	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	0	155	264	1	412	231	340	318
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	155	264	1	412	231	340	318
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
50th-Percentile Queue Length [veh/ln]	2.65		5.14	7.12		5.94	8.39	1.37
50th-Percentile Queue Length [ft/ln]	66.35		128.62	177.98		148.59	209.85	34.27
95th-Percentile Queue Length [veh/ln]	4.78		8.86	11.50		9.94	13.15	2.47
95th-Percentile Queue Length [ft/ln]	119.43		221.62	287.38		248.55	328.64	61.68
d_M, Delay for Movement [s/veh]	25.19	25.19	29.47	30.24	30.49	32.02	44.47	8.70
Movement LOS	C	C	C	C	C	C	D	A
d_A, Approach Delay [s/veh]	27.89			31.04			27.18	
Approach LOS	C			C			C	
d_I, Intersection Delay [s/veh]	28.80							
Intersection LOS	C							
Intersection V/C	0.638							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



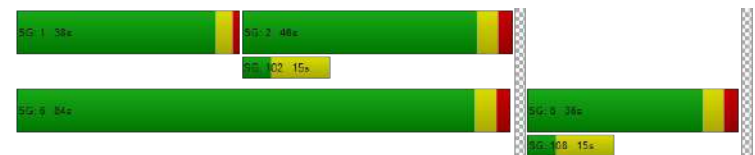
KEMPWOOD DRIVE AT WIRT ROAD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			Kempwood Dr	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	0	155	264	1	412	231	340	318
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	193	329	1	513	288	423	396
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
50th-Percentile Queue Length [veh/ln]	4.45	9.40	12.12	10.27	15.71	1.97		
50th-Percentile Queue Length [ft/ln]	111.15	235.07	303.00	256.76	392.83	49.22		
95th-Percentile Queue Length [veh/ln]	7.90	14.43	17.83	15.53	22.21	3.54		
95th-Percentile Queue Length [ft/ln]	197.60	360.80	445.74	388.16	555.36	88.60		
d_M, Delay for Movement [s/veh]	33.85	33.85	46.21	40.52	41.20	45.65	73.87	8.69
Movement LOS	C	C	D	D	D	D	E	A
d_A, Approach Delay [s/veh]	41.64			42.80			42.38	
Approach LOS	D			D			D	
d_I, Intersection Delay [s/veh]	42.36							
Intersection LOS	D							
Intersection V/C	0.793							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



KEMPWOOD DRIVE AT WIRT ROAD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			Kempwood Dr	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	0	155	264	1	412	231	340	318
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	193	329	1	513	288	423	396
Peak Hour Factor	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580	0.9580
50th-Percentile Queue Length [veh/ln]	4.45	9.40	12.12	10.27	15.71	1.97		
50th-Percentile Queue Length [ft/ln]	111.15	235.07	303.00	256.76	392.83	49.22		
95th-Percentile Queue Length [veh/ln]	7.90	14.43	17.83	15.53	22.21	3.54		
95th-Percentile Queue Length [ft/ln]	197.60	360.80	445.74	388.16	555.36	88.60		
d_M, Delay for Movement [s/veh]	33.85	33.85	46.21	40.52	41.20	45.65	73.87	8.69
Movement LOS	C	C	D	D	D	D	E	A
d_A, Approach Delay [s/veh]	41.64			42.80			42.38	
Approach LOS	D			D			D	
d_I, Intersection Delay [s/veh]	42.36							
Intersection LOS	D							
Intersection V/C	0.793							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



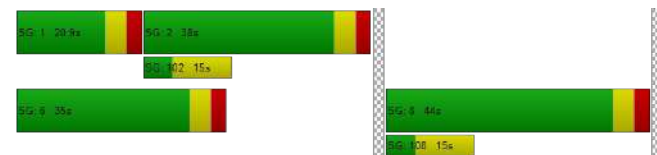
KEMPWOOD DRIVE AT WIRT ROAD

EXISTING GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			34th St	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	1	295	479	0	381	268	375	483
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	295	479	0	381	268	375	483
Peak Hour Factor	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590
50th-Percentile Queue Length [veh/ln]	7.38	17.89	12.18	9.89	16.59	3.91		
50th-Percentile Queue Length [ft/ln]	184.42	447.23	304.45	247.14	414.73	97.75		
95th-Percentile Queue Length [veh/ln]	11.83	24.83	17.90	15.04	23.38	7.04		
95th-Percentile Queue Length [ft/ln]	295.78	620.64	447.53	376.05	584.47	175.95		
d_M, Delay for Movement [s/veh]	31.60	31.60	61.38	53.06	53.22	56.22	90.52	15.71
Movement LOS	C	C	E	D	D	E	F	B
d_A, Approach Delay [s/veh]	49.99			54.46			48.39	
Approach LOS	D			D			D	
d_I, Intersection Delay [s/veh]	50.66							
Intersection LOS	D							
Intersection V/C	0.820							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



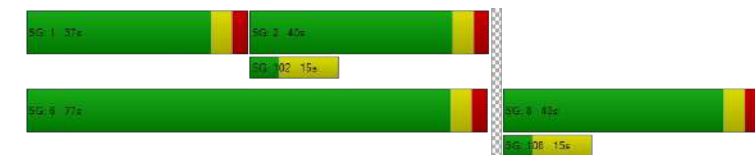
KEMPWOOD DRIVE AT WIRT ROAD

PROPOSED GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			34th St	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	1	295	479	0	381	268	375	483
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	295	479	0	381	268	375	483
Peak Hour Factor	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590
50th-Percentile Queue Length [veh/ln]	7.41	17.90	11.81	9.91	16.78	3.94		
50th-Percentile Queue Length [ft/ln]	185.18	447.51	295.35	247.66	419.39	98.49		
95th-Percentile Queue Length [veh/ln]	11.87	24.84	17.45	15.07	23.70	7.09		
95th-Percentile Queue Length [ft/ln]	296.77	620.97	436.28	376.70	592.47	177.28		
d_M, Delay for Movement [s/veh]	31.69	31.69	61.08	49.90	50.21	56.14	93.17	15.87
Movement LOS	C	C	E	D	D	E	F	B
d_A, Approach Delay [s/veh]	49.84			52.66			49.64	
Approach LOS	D			D			D	
d_I, Intersection Delay [s/veh]	50.57							
Intersection LOS	D							
Intersection V/C	0.820							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



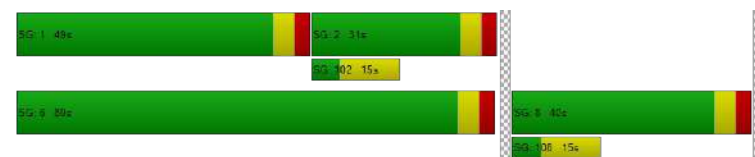
KEMPWOOD DRIVE AT WIRT ROAD

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			34th St	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	1	295	479	0	381	268	375	483
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	367	596	0	474	334	467	601
Peak Hour Factor	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590
50th-Percentile Queue Length [veh/ln]	11.53	33.61	17.76	14.88	31.48	5.59		
50th-Percentile Queue Length [ft/ln]	288.14	840.21	444.03	371.98	787.08	139.84		
95th-Percentile Queue Length [veh/ln]	17.09	48.73	24.67	21.21	47.89	9.47		
95th-Percentile Queue Length [ft/ln]	427.34	1218.14	616.82	530.13	1197.28	236.81		
d_M, Delay for Movement [s/veh]	40.37	40.37	157.63	59.93	60.35	69.51	257.33	17.10
Movement LOS	D	D	F	E	E	E	F	B
d_A, Approach Delay [s/veh]	112.83			64.14			122.12	
Approach LOS	F			E			F	
d_I, Intersection Delay [s/veh]	102.48							
Intersection LOS	F							
Intersection V/C	1.019							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



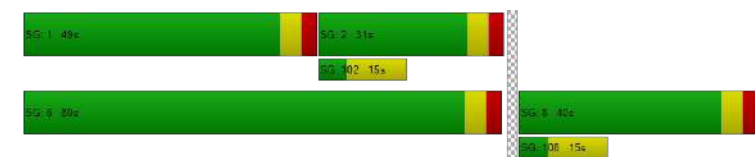
KEMPWOOD DRIVE AT WIRT ROAD

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Wirt Rd			Kempwood Dr			34th St	
Approach	Northbound			Eastbound			Westbound	
Lane Configuration	TT			TT			TTT	
Turning Movement	U-turn	Left	Right	U-turn	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	130.00	100.00
Speed [mph]	30.00			30.00			30.00	
Base Volume Input [veh/h]	1	295	479	0	381	268	375	483
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	367	596	0	474	334	467	601
Peak Hour Factor	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590	0.9590
50th-Percentile Queue Length [veh/ln]	11.53	33.61	17.76	14.88	31.48	5.59		
50th-Percentile Queue Length [ft/ln]	288.14	840.21	444.03	371.98	787.08	139.84		
95th-Percentile Queue Length [veh/ln]	17.09	48.73	24.67	21.21	47.89	9.47		
95th-Percentile Queue Length [ft/ln]	427.34	1218.14	616.82	530.13	1197.28	236.81		
d_M, Delay for Movement [s/veh]	40.37	40.37	157.63	59.93	60.35	69.51	257.33	17.10
Movement LOS	D	D	F	E	E	E	F	B
d_A, Approach Delay [s/veh]	112.83			64.14			122.12	
Approach LOS	F			E			F	
d_I, Intersection Delay [s/veh]	102.48							
Intersection LOS	F							
Intersection V/C	1.019							

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Kempwood Dr			34th Street			Hempstead Rd			Hempstead Rd			
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound			
Lane Configuration	T			T			T			T			
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.	100.	100.	100.	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	130	350	164	0	42	369	122	96	397	45	121	748	231
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	350	164	0	42	369	122	96	397	45	121	748	231
Peak Hour Factor	0.9470	1.0000	0.9470	1.00	1.00	1.00	1.00	0.9470	0.9470	1.0000	1.0000	0.9470	0.9470
50th-Percentile Queue Length [veh/ln]	1.57	6.03	5.46	1.09	4.26	2.76	2.42	4.82	4.69	2.94	9.25	5.19	
50th-Percentile Queue Length [ft/ln]	39.13	150.81	136.62	27.15	106.40	68.91	60.61	120.42	117.27	73.58	231.26	129.77	
95th-Percentile Queue Length [veh/ln]	2.82	10.06	9.30	1.96	7.64	4.96	4.36	8.42	8.24	5.30	14.24	8.93	
95th-Percentile Queue Length [ft/ln]	70.44	251.51	232.47	48.88	190.98	124.03	109.10	210.40	206.07	132.45	355.96	223.18	
d_M, Delay for Movement [s/veh]	39.77	33.86	34.07	47.8	47.8	38.4	37.4	42.12	30.55	30.58	42.80	35.65	31.84
Movement LOS	D	C	C	D	D	D	D	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	35.14			38.97			32.62			35.60			
Approach LOS	D			D			C			D			
d_I, Intersection Delay [s/veh]	35.53												
Intersection LOS	D												
Intersection V/C	0.501												

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Kempwood Dr			34th Street			Hempstead Rd			Hempstead Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.00	100.00	100.00	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	130	350	164	42	369	122	96	397	45	121	748	231
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	130	350	164	42	369	122	96	397	45	121	748	231
Peak Hour Factor	0.9470	1.0000	0.9470	1.0000	1.0000	1.0000	0.9470	0.9470	1.0000	1.0000	0.9470	0.9470
50th-Percentile Queue Length [veh/ln]	3.34	5.42	4.92	1.17	5.75	5.45	2.06	3.88	3.77	2.49	7.36	4.16
50th-Percentile Queue Length [ft/ln]	83.51	135.58	123.00	29.17	143.76	136.28	51.40	96.88	94.34	62.15	183.89	103.90
95th-Percentile Queue Length [veh/ln]	6.01	9.24	8.56	2.10	9.68	9.28	3.70	6.98	6.79	4.47	11.80	7.48
95th-Percentile Queue Length [ft/ln]	150.32	231.06	213.94	52.51	242.08	232.01	92.51	174.38	169.82	111.87	295.09	187.02
d_M, Delay for Movement [s/veh]	48.22	31.94	32.20	58.44	41.46	42.25	35.74	24.01	24.04	36.07	27.38	24.81
Movement LOS	D	C	C	E	D	D	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	35.39			42.98			26.11			27.75		
Approach LOS	D			D			C			C		
d_I, Intersection Delay [s/veh]	31.95											
Intersection LOS	C											
Intersection V/C	0.549											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



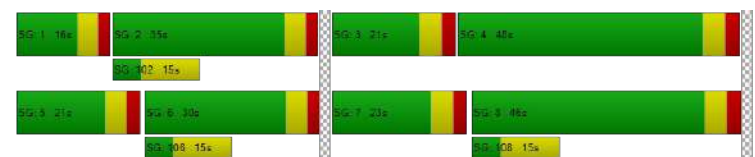
HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Kempwood Dr			34th Street			Hempstead Rd			Hempstead Rd			
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound			
Lane Configuration	TWO			THREE			TWO			THREE			
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.	100.	100.	100.	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	130	350	164	0	42	369	122	96	397	45	121	748	231
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.24	1.24	1.24	1.24	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	436	204	0	52	459	152	120	494	56	151	931	288
Peak Hour Factor	0.9470	1.0000	0.9470	1.00	1.00	1.00	1.00	0.9470	0.9470	1.0000	1.0000	0.9470	0.9470
50th-Percentile Queue Length [veh/ln]	2.20	9.48	8.54	1.47	6.23	3.98	3.46	6.30	6.11	4.24	12.71	6.87	
50th-Percentile Queue Length [ft/ln]	54.97	237.05	213.56	36.87	155.69	99.43	86.58	157.42	152.70	105.93	317.67	171.76	
95th-Percentile Queue Length [veh/ln]	3.96	14.53	13.34	2.65	10.32	7.16	6.23	10.41	10.16	7.61	18.55	11.17	
95th-Percentile Queue Length [ft/ln]	98.95	363.31	333.39	66.36	258.00	178.98	155.84	260.30	254.03	190.32	463.82	279.23	
d_M, Delay for Movement [s/veh]	44.86	45.67	46.29	52.3	52.3	46.3	44.1	48.30	29.70	29.72	50.42	37.00	31.51
Movement LOS	D	D	D	D	D	D	D	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	45.67			46.29			33.05			37.25			
Approach LOS	D			D			C			D			
d_I, Intersection Delay [s/veh]	39.99												
Intersection LOS	D												
Intersection V/C	0.623												

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Kempwood Dr			34th Street			Hempstead Rd			Hempstead Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	TWO			TWO			TWO			THREE		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.00	100.00	100.00	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	130	350	164	42	369	122	96	397	45	121	748	231
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	162	436	204	52	459	152	120	494	56	151	931	288
Peak Hour Factor	0.9470	1.0000	0.9470	1.0000	1.0000	1.0000	0.9470	0.9470	1.0000	1.0000	0.9470	0.9470
50th-Percentile Queue Length [veh/ln]	5.11	8.61	7.75	1.76	9.65	9.10	3.41	6.21	6.03	4.17	12.53	6.78
50th-Percentile Queue Length [ft/ln]	127.65	215.23	193.86	44.12	241.25	227.62	85.36	155.31	150.65	104.37	313.34	169.45
95th-Percentile Queue Length [veh/ln]	8.81	13.42	12.32	3.18	14.74	14.05	6.15	10.30	10.05	7.51	18.34	11.05
95th-Percentile Queue Length [ft/ln]	220.29	335.53	308.03	79.42	368.62	351.34	153.65	257.49	251.30	187.87	458.49	276.19
d_M, Delay for Movement [s/veh]	56.82	38.36	38.82	71.25	56.32	57.76	47.63	29.37	29.39	49.67	36.58	31.16
Movement LOS	E	D	D	E	E	E	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	42.32			57.82			32.66			36.81		
Approach LOS	D			E			C			D		
d_I, Intersection Delay [s/veh]	41.09											
Intersection LOS	D											
Intersection V/C	0.683											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	34th St			34th Street			Hempstead Rd			Hempstead Rd			
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound			
Lane Configuration	T T T			T T T			T T T			T T T			
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.	100.	100.	100.	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	203	485	126	2	35	456	161	211	764	57	116	457	164
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	203	485	126	2	35	456	161	211	764	57	116	457	164
Peak Hour Factor	0.9390	1.0000	0.9390	1.00	1.00	1.00	1.00	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	2.56	7.32	6.82	0.97	5.53	3.82	5.58	9.88	9.67	3.23	5.50	3.87	
50th-Percentile Queue Length [ft/ln]	64.05	183.11	170.40	24.20	138.23	95.53	139.48	247.05	241.73	80.64	137.60	96.72	
95th-Percentile Queue Length [veh/ln]	4.61	11.76	11.10	1.74	9.39	6.88	9.45	15.04	14.77	5.81	9.35	6.96	
95th-Percentile Queue Length [ft/ln]	115.29	294.07	277.45	43.56	234.63	171.95	236.33	375.94	369.22	145.15	233.79	174.09	
d_M, Delay for Movement [s/veh]	41.42	35.34	35.45	48.4	48.4	40.8	39.7	42.35	32.49	32.52	53.75	35.83	34.95
Movement LOS	D	D	D	D	D	D	D	D	C	C	D	D	C
d_A, Approach Delay [s/veh]	36.93			41.04			34.51			38.30			
Approach LOS	D			D			C			D			
d_I, Intersection Delay [s/veh]	37.26												
Intersection LOS	D												
Intersection V/C	0.548												

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	34th St			34th Street			Hempstead Rd			Hempstead Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.00	100.00	100.00	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	203	485	126	36	456	161	211	764	57	116	457	164
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	203	485	126	36	456	161	211	764	57	116	457	164
Peak Hour Factor	0.9390	1.0000	0.9390	1.0000	1.0000	1.0000	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	5.97	6.63	6.17	1.16	8.97	8.44	5.60	9.93	9.72	3.25	5.53	3.88
50th-Percentile Queue Length [ft/ln]	149.20	165.63	154.22	29.03	224.15	211.04	140.04	248.27	242.92	81.16	138.15	97.11
95th-Percentile Queue Length [veh/ln]	9.97	10.85	10.24	2.09	13.88	13.21	9.48	15.10	14.83	5.84	9.38	6.99
95th-Percentile Queue Length [ft/ln]	249.36	271.16	256.06	52.26	346.92	330.17	237.08	377.47	370.73	146.09	234.54	174.80
d_M, Delay for Movement [s/veh]	51.73	29.39	29.48	67.06	51.36	52.76	42.55	32.69	32.72	54.26	36.01	35.12
Movement LOS	D	C	C	E	D	D	D	C	C	D	D	D
d_A, Approach Delay [s/veh]	35.18			52.57			34.72			38.53		
Approach LOS	D			D			C			D		
d_I, Intersection Delay [s/veh]	39.18											
Intersection LOS	D											
Intersection V/C	0.662											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	34th St			34th Street			Hempstead Rd			Hempstead Rd			
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound			
Lane Configuration	T			T			T			T			
Turning Movement	Left	Thru	Right	U-tu	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.0	12.0	12.0	12.0	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	220.00	100.00	100.00	115.	100.	100.	100.	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00			
Base Volume Input [veh/h]	203	485	126	2	35	456	161	211	764	57	116	457	164
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.00	1.00	1.00	1.00	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.24	1.24	1.24	1.24	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	604	157	2	44	568	200	263	951	71	144	569	204
Peak Hour Factor	0.9390	1.0000	0.9390	1.00	1.00	1.00	1.00	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	3.94	12.17	11.34	1.41	8.42	5.67	8.90	15.43	15.20	4.74	13.34	12.25	
50th-Percentile Queue Length [ft/ln]	98.60	304.26	283.59	35.21	210.45	141.87	222.41	385.70	380.12	118.45	333.50	306.19	
95th-Percentile Queue Length [veh/ln]	7.10	17.89	16.87	2.53	13.18	9.58	13.79	21.87	21.60	8.31	19.33	17.99	
95th-Percentile Queue Length [ft/ln]	177.48	447.29	421.67	63.37	329.40	239.54	344.70	546.74	539.99	207.70	483.25	449.68	
d_M, Delay for Movement [s/veh]	51.96	49.93	50.31	56.3	56.3	49.5	46.6	56.60	40.25	40.44	63.32	51.16	51.71
Movement LOS	D	D	D	E	E	D	D	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	50.52			49.21			43.61			53.09			
Approach LOS	D			D			D			D			
d_I, Intersection Delay [s/veh]	48.61												
Intersection LOS	D												
Intersection V/C	0.697												

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



HEMPSTEAD ROAD AT KEMPWOOD DRIVE/WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	34th St			34th Street			Hempstead Rd			Hempstead Rd		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	T			T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	2	0	0	1	0	0	1	0	0	1	0	1
Pocket Length [ft]	220.00	100.00	100.00	115.00	100.00	100.00	110.00	100.00	100.00	110.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	203	485	126	37	456	161	211	764	57	116	457	164
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.0000	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	253	604	157	46	456	200	263	951	71	144	569	204
Peak Hour Factor	0.9390	1.0000	0.9390	1.0000	1.0000	1.0000	0.9390	0.9390	1.0000	1.0000	0.9390	0.9390
50th-Percentile Queue Length [veh/ln]	11.12	12.16	11.33	1.94	14.70	13.65	10.68	19.60	19.35	5.59	9.57	6.60
50th-Percentile Queue Length [ft/ln]	278.08	303.93	283.31	48.43	367.41	341.36	266.95	489.91	483.70	139.69	239.16	165.03
95th-Percentile Queue Length [veh/ln]	16.59	17.88	16.85	3.49	20.98	19.71	16.04	26.86	26.56	9.46	14.64	10.81
95th-Percentile Queue Length [ft/ln]	414.82	446.88	421.34	87.18	524.58	492.86	400.92	671.41	664.04	236.61	365.97	270.37
d_M, Delay for Movement [s/veh]	79.41	42.09	42.37	86.16	83.51	86.46	68.35	54.40	54.79	74.29	47.14	45.34
Movement LOS	E	D	D	F	F	F	E	D	D	E	D	D
d_A, Approach Delay [s/veh]	51.78			84.52			57.28			50.78		
Approach LOS	D			F			E			D		
d_I, Intersection Delay [s/veh]	59.03											
Intersection LOS	E											
Intersection V/C	0.790											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.54	1.96	1.82	0.38	8.03	7.70	1.49	1.93	2.05	3.10	1.62	1.70
50th-Percentile Queue Length [ft/ln]	13.46	49.07	45.58	9.38	200.74	192.60	37.31	48.18	51.26	77.55	40.45	42.51
95th-Percentile Queue Length [veh/ln]	0.97	3.53	3.28	0.68	12.68	12.26	2.69	3.47	3.69	5.58	2.91	3.06
95th-Percentile Queue Length [ft/ln]	24.23	88.32	82.05	16.88	316.92	306.40	67.17	86.73	92.27	139.58	72.80	76.52
d_M, Delay for Movement [s/veh]	38.37	13.62	13.70	40.05	21.31	21.46	40.65	29.12	30.42	32.67	24.44	24.74
Movement LOS	D	B	B	D	C	C	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	15.25			21.62			31.20			27.25		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	23.44											
Intersection LOS	C											
Intersection V/C	0.536											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.58	2.16	2.00	0.40	8.81	8.45	1.59	3.35	3.27	3.35	2.72	2.67
50th-Percentile Queue Length [ft/ln]	14.42	53.92	50.08	10.00	220.18	211.23	39.77	83.84	81.68	83.72	67.93	66.72
95th-Percentile Queue Length [veh/ln]	1.04	3.88	3.61	0.72	13.67	13.22	2.86	6.04	5.88	6.03	4.89	4.80
95th-Percentile Queue Length [ft/ln]	25.96	97.06	90.15	18.00	341.85	330.41	71.59	150.91	147.03	150.69	122.27	120.10
d_M, Delay for Movement [s/veh]	40.86	14.70	14.77	42.48	22.97	23.13	42.79	32.50	32.73	34.88	25.81	25.84
Movement LOS	D	B	B	D	C	C	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.42			23.29			34.26			28.90		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	25.27											
Intersection LOS	C											
Intersection V/C	0.569											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

EXISTING GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	351	168	24	1289	223	101	433	65	242	437	31
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.97	3.43	3.14	0.66	15.88	15.86	2.56	3.70	3.90	5.77	3.04	3.16
50th-Percentile Queue Length [ft/ln]	24.19	85.83	78.60	16.42	397.10	396.47	64.08	92.60	97.57	144.13	75.95	78.96
95th-Percentile Queue Length [veh/ln]	1.74	6.18	5.66	1.18	22.42	22.39	4.61	6.67	7.03	9.70	5.47	5.69
95th-Percentile Queue Length [ft/ln]	43.53	154.49	141.47	29.56	560.51	559.75	115.35	166.68	175.63	242.57	136.71	142.14
d_M, Delay for Movement [s/veh]	54.62	15.70	15.77	54.60	31.09	32.26	51.63	42.35	44.61	45.19	33.65	33.99
Movement LOS	D	B	B	D	C	C	D	D	D	D	C	C
d_A, Approach Delay [s/veh]	18.25			31.63			44.16			37.60		
Approach LOS	B			C			D			D		
d_I, Intersection Delay [s/veh]	32.90											
Intersection LOS	C											
Intersection V/C	0.670											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

PROPOSED GEOMETRY 2040 SCENARIO

AM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	29	282	135	19	1035	179	81	348	52	194	351	25
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.56	2.12	1.97	0.39	9.64	9.32	1.54	3.24	3.16	3.24	2.62	2.58
50th-Percentile Queue Length [ft/ln]	13.98	53.12	49.35	9.71	241.07	232.93	38.48	80.96	78.88	80.90	65.59	64.43
95th-Percentile Queue Length [veh/ln]	1.01	3.82	3.55	0.70	14.74	14.32	2.77	5.83	5.68	5.83	4.72	4.64
95th-Percentile Queue Length [ft/ln]	25.16	95.62	88.82	17.48	368.39	358.08	69.27	145.72	141.98	145.63	118.06	115.97
d_M, Delay for Movement [s/veh]	39.72	14.79	14.86	41.36	28.27	28.68	41.53	31.55	31.76	33.88	25.09	25.11
Movement LOS	D	B	B	D	C	C	D	C	C	C	C	C
d_A, Approach Delay [s/veh]	16.43			28.53			33.25			28.08		
Approach LOS	B			C			C			C		
d_I, Intersection Delay [s/veh]	27.29											
Intersection LOS	C											
Intersection V/C	0.569											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



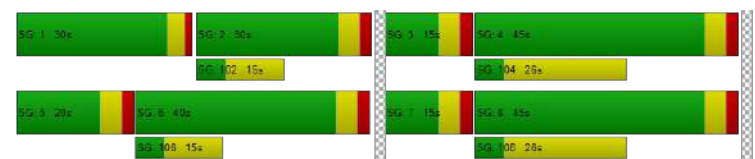
WEST 34TH STREET AT ANTOINE ROAD

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	27	778	215	33	457	109	161	440	40	168	457	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	778	215	33	457	109	161	440	40	168	457	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.46	6.23	5.82	0.55	2.83	2.68	2.36	1.94	2.05	2.45	2.14	2.29
50th-Percentile Queue Length [ft/ln]	11.47	155.87	145.39	13.66	70.72	67.03	59.03	48.52	51.21	61.24	53.61	57.27
95th-Percentile Queue Length [veh/ln]	0.83	10.33	9.77	0.98	5.09	4.83	4.25	3.49	3.69	4.41	3.86	4.12
95th-Percentile Queue Length [ft/ln]	20.64	258.25	244.26	24.59	127.29	120.65	106.25	87.33	92.18	110.23	96.49	103.08
d_M, Delay for Movement [s/veh]	35.39	21.78	21.94	34.79	16.27	16.32	31.07	24.00	24.61	30.78	26.21	27.36
Movement LOS	D	C	C	C	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	22.17			17.30			25.81			27.43		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	23.17											
Intersection LOS	C											
Intersection V/C	0.479											

Ring 1	2	1	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	27	778	215	33	457	109	161	440	40	168	427	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	778	215	33	457	109	161	440	40	168	427	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.49	6.95	6.49	0.59	3.11	2.95	2.55	3.36	3.28	2.64	3.49	3.40
50th-Percentile Queue Length [ft/ln]	12.28	173.81	162.23	14.67	77.83	73.76	63.66	83.89	81.98	66.09	87.24	85.07
95th-Percentile Queue Length [veh/ln]	0.88	11.28	10.67	1.06	5.60	5.31	4.58	6.04	5.90	4.76	6.28	6.12
95th-Percentile Queue Length [ft/ln]	22.11	281.91	266.68	26.41	140.09	132.76	114.60	151.00	147.56	118.96	157.03	153.12
d_M, Delay for Movement [s/veh]	37.63	24.12	24.32	37.08	17.56	17.61	33.03	26.32	26.38	32.74	28.79	28.89
Movement LOS	D	C	C	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	24.52			18.65			28.01			29.83		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	25.25											
Intersection LOS	C											
Intersection V/C	0.519											

Ring 1	2	1	3	4	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-



WEST 34TH STREET AT ANTOINE ROAD

EXISTING GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	27	778	215	33	457	109	161	440	40	168	457	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	969	268	41	569	136	200	548	50	209	569	56
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.74	12.59	12.07	0.88	4.69	4.41	3.84	3.33	3.48	4.00	3.63	3.83
50th-Percentile Queue Length [ft/ln]	18.43	314.78	301.85	22.06	117.15	110.14	95.96	83.24	87.08	99.95	90.80	95.85
95th-Percentile Queue Length [veh/ln]	1.33	18.41	17.77	1.59	8.24	7.85	6.91	5.99	6.27	7.20	6.54	6.90
95th-Percentile Queue Length [ft/ln]	33.18	460.27	444.32	39.71	205.91	196.19	172.72	149.84	156.75	179.91	163.45	172.54
d_M, Delay for Movement [s/veh]	44.43	37.22	38.41	44.49	19.05	19.09	38.04	31.04	31.91	37.78	33.38	34.88
Movement LOS	D	D	D	D	B	B	D	C	C	D	C	C
d_A, Approach Delay [s/veh]	37.66			20.46			32.85			34.58		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	32.39											
Intersection LOS	C											
Intersection V/C	0.597											

Ring 1	2	1	3	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



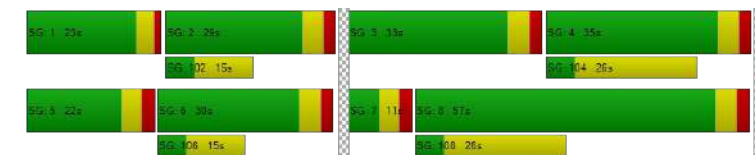
WEST 34TH STREET AT ANTOINE ROAD

PROPOSED GEOMETRY 2040 SCENARIO

PM PEAK HOUR

Name	Antoine Dr			Antoine Dr			34th Street			34 Street		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	T T T			T T T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	35.00			35.00			35.00			35.00		
Base Volume Input [veh/h]	27	778	215	33	457	109	161	440	40	168	427	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	27	778	215	33	457	109	161	440	40	168	427	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.50	6.84	6.37	0.59	3.12	2.96	2.59	3.40	3.32	2.67	3.52	3.43
50th-Percentile Queue Length [ft/ln]	12.40	170.96	159.37	14.82	78.02	73.93	64.68	84.96	83.02	66.79	88.06	85.87
95th-Percentile Queue Length [veh/ln]	0.89	11.13	10.52	1.07	5.62	5.32	4.66	6.12	5.98	4.81	6.34	6.18
95th-Percentile Queue Length [ft/ln]	22.33	278.18	262.88	26.68	140.44	133.08	116.42	152.93	149.44	120.22	158.52	154.56
d_M, Delay for Movement [s/veh]	37.96	23.19	23.35	37.41	17.47	17.52	33.62	26.63	26.69	33.04	28.98	29.08
Movement LOS	D	C	C	D	B	B	C	C	C	C	C	C
d_A, Approach Delay [s/veh]	23.61			18.58			28.39			30.05		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	25.05											
Intersection LOS	C											
Intersection V/C	0.519											

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	34 Street			W 34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	375	196	167	628	0	0	0	0	50	377	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	375	196	167	628	0	0	0	0	50	377	0
Peak Hour Factor	1.0000	1.0000	1.0000	0.9450	1.0000	1.0000	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000
50th-Percentile Queue Length [veh/ln]	2.55	4.62	2.10	3.10	3.51					1.02	4.31	4.31
50th-Percentile Queue Length [ft/ln]	63.86	115.55	52.45	77.57	87.67					25.49	107.67	107.67
95th-Percentile Queue Length [veh/ln]	4.60	8.15	3.78	5.59	6.31					1.84	7.71	7.71
95th-Percentile Queue Length [ft/ln]	114.95	203.69	94.41	139.63	157.81					45.88	192.76	192.76
d_M, Delay for Movement [s/veh]	0.00	35.30	43.21	14.00	23.25	0.00	0.00	0.00	0.00	32.35	37.44	37.44
Movement LOS		D	D	B	C					C	D	D
d_A, Approach Delay [s/veh]	38.01			21.22			0.00			36.84		
Approach LOS	D			C			A			D		
d_I, Intersection Delay [s/veh]	30.33											
Intersection LOS	C											
Intersection V/C	0.485											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	34 Street			W 34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	375	196	167	628	0	0	0	0	50	377	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	375	196	167	628	0	0	0	0	50	377	11
Peak Hour Factor	1.0000	1.0000	1.0000	0.9450	1.0000	1.0000	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000
50th-Percentile Queue Length [veh/ln]	2.51	4.56	0.80	6.83						0.65	2.79	2.77
50th-Percentile Queue Length [ft/ln]	62.87	113.88	19.89	170.77						16.28	69.73	69.29
95th-Percentile Queue Length [veh/ln]	4.53	8.06	1.43	11.12						1.17	5.02	4.99
95th-Percentile Queue Length [ft/ln]	113.16	201.39	35.80	277.93						29.30	125.52	124.72
d_M, Delay for Movement [s/veh]	0.00	34.83	42.71	15.20	36.78	0.00	0.00	0.00	0.00	15.70	17.46	17.47
Movement LOS		C	D	B	D					B	B	B
d_A, Approach Delay [s/veh]	37.54			32.04			0.00			17.26		
Approach LOS	D			C			A			B		
d_I, Intersection Delay [s/veh]	30.03											
Intersection LOS	C											
Intersection V/C	0.450											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO
AM PEAK HOUR

Name	34 Street			W 34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	375	196	167	628	0	0	0	0	50	377	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	467	244	208	782	0	0	0	0	62	469	14
Peak Hour Factor	1.0000	1.0000	1.0000	0.9450	1.0000	1.0000	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000
50th-Percentile Queue Length [veh/ln]	2.29		4.22	2.64	3.97	3.75				0.89	4.02	4.00
50th-Percentile Queue Length [ft/ln]	57.20		105.40	66.02	99.30	93.78				22.36	100.60	99.88
95th-Percentile Queue Length [veh/ln]	4.12		7.58	4.75	7.15	6.75				1.61	7.24	7.19
95th-Percentile Queue Length [ft/ln]	102.96		189.59	118.83	178.73	168.81				40.25	181.08	179.79
d_M, Delay for Movement [s/veh]	0.00	25.37	31.60	17.78	24.36	0.00	0.00	0.00	0.00	22.67	27.26	27.28
Movement LOS		C	C	B	C					C	C	C
d_A, Approach Delay [s/veh]	27.51			22.91			0.00			26.73		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	25.30											
Intersection LOS	C											
Intersection V/C	0.482											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO
AM PEAK HOUR

Name	34 Street			W 34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	375	196	167	628	0	0	0	0	50	377	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	467	244	208	782	0	0	0	0	62	469	14
Peak Hour Factor	1.0000	1.0000	1.0000	0.9450	1.0000	1.0000	1.0000	1.0000	1.0000	0.9450	0.9450	1.0000
50th-Percentile Queue Length [veh/ln]	3.58		6.74	1.18	10.08				1.02	4.58	4.48	
50th-Percentile Queue Length [ft/ln]	89.59		168.47	29.58	252.10				25.47	114.41	112.08	
95th-Percentile Queue Length [veh/ln]	6.45		11.00	2.13	15.29				1.83	8.08	7.96	
95th-Percentile Queue Length [ft/ln]	161.26		274.90	53.24	382.30				45.85	202.12	198.89	
d_M, Delay for Movement [s/veh]	0.00	37.89	49.60	19.74	41.66	0.00	0.00	0.00	0.00	19.85	23.09	22.93
Movement LOS		D	D	B	D					B	C	C
d_A, Approach Delay [s/veh]	41.91			36.85			0.00			22.71		
Approach LOS	D			D			A			C		
d_I, Intersection Delay [s/veh]	34.86											
Intersection LOS	C											
Intersection V/C	0.561											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

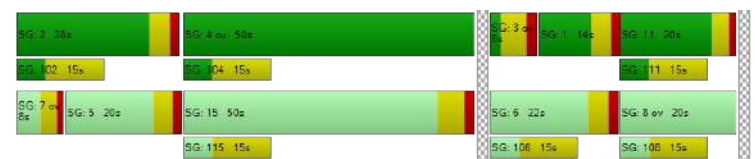


US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2019 SCENARIO
PM PEAK HOUR

Name	34 Street			34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Peak Hour Factor	1.0000	1.0000	1.0000	0.9230	1.0000	1.0000	1.0000	1.0000	1.0000	0.9230	0.9230	1.0000
50th-Percentile Queue Length [veh/ln]	4.37	2.96	1.62	6.03	3.85					1.32	1.63	1.62
50th-Percentile Queue Length [ft/ln]	109.28	74.03	40.52	150.65	96.30					33.11	40.76	40.60
95th-Percentile Queue Length [veh/ln]	7.80	5.33	2.92	10.05	6.93					2.38	2.93	2.92
95th-Percentile Queue Length [ft/ln]	194.99	133.26	72.94	251.30	173.34					59.60	73.37	73.09
d_M, Delay for Movement [s/veh]	0.00	29.93	29.00	20.96	31.72	0.00	0.00	0.00	0.00	24.64	24.90	24.91
Movement LOS		C	C	C	C					C	C	C
d_A, Approach Delay [s/veh]	29.75			30.26			0.00			24.83		
Approach LOS	C			C			A			C		
d_I, Intersection Delay [s/veh]	29.25											
Intersection LOS	C											
Intersection V/C	0.493											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-

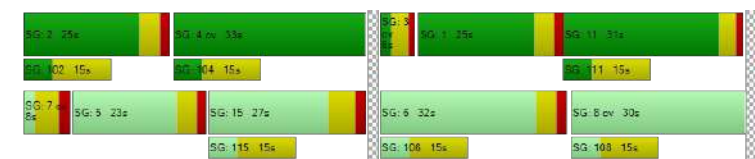


US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2019 SCENARIO
PM PEAK HOUR

Name	34 Street			34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Peak Hour Factor	1.0000	1.0000	1.0000	0.9230	1.0000	1.0000	1.0000	1.0000	1.0000	0.9230	0.9230	1.0000
50th-Percentile Queue Length [veh/ln]	6.00	4.05	0.91	9.30						1.57	1.93	1.93
50th-Percentile Queue Length [ft/ln]	150.05	101.23	22.81	232.50						39.29	48.37	48.18
95th-Percentile Queue Length [veh/ln]	10.02	7.29	1.64	14.30						2.83	3.48	3.47
95th-Percentile Queue Length [ft/ln]	250.49	182.22	41.07	357.53						70.73	87.07	86.73
d_M, Delay for Movement [s/veh]	0.00	41.80	40.27	21.39	41.93	0.00	0.00	0.00	0.00	26.79	27.07	27.07
Movement LOS		D	D	C	D					C	C	C
d_A, Approach Delay [s/veh]	41.51			39.14			0.00			26.99		
Approach LOS	D			D			A			C		
d_I, Intersection Delay [s/veh]	38.43											
Intersection LOS	D											
Intersection V/C	0.471											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-

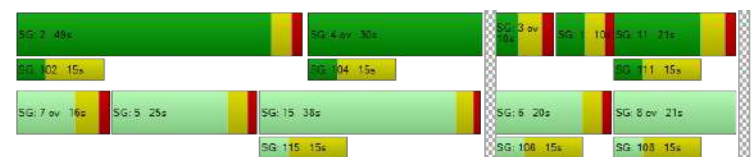


US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO
PM PEAK HOUR

Name	34 Street			34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	901	209	131	904	0	0	0	0	97	232	6
Peak Hour Factor	1.0000	1.0000	1.0000	0.9230	1.0000	1.0000	1.0000	1.0000	1.0000	0.9230	0.9230	1.0000
50th-Percentile Queue Length [veh/ln]	7.52	4.98	2.99	11.63	6.31					2.04	2.54	2.52
50th-Percentile Queue Length [ft/ln]	187.93	124.60	74.67	290.66	157.85					51.06	63.38	63.09
95th-Percentile Queue Length [veh/ln]	12.01	8.65	5.38	17.22	10.43					3.68	4.56	4.54
95th-Percentile Queue Length [ft/ln]	300.34	216.14	134.41	430.46	260.87					91.91	114.09	113.56
d_M, Delay for Movement [s/veh]	0.00	40.02	37.93	30.15	45.16	0.00	0.00	0.00	0.00	28.34	28.72	28.73
Movement LOS		D	D	C	D					C	C	C
d_A, Approach Delay [s/veh]	39.63			43.12			0.00			28.61		
Approach LOS	D			D			A			C		
d_I, Intersection Delay [s/veh]	39.49											
Intersection LOS	D											
Intersection V/C	0.532											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

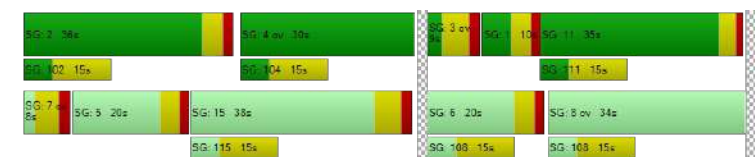


US290 SOUTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO
PM PEAK HOUR

Name	34 Street			34th St			SBFR US 290			SBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	0	724	168	105	726	0	0	0	0	78	186	5
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000	1.0000	1.2450	1.2450	1.2450
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	901	209	131	904	0	0	0	0	97	232	6
Peak Hour Factor	1.0000	1.0000	1.0000	0.9230	1.0000	1.0000	1.0000	1.0000	1.0000	0.9230	0.9230	1.0000
50th-Percentile Queue Length [veh/ln]	8.15	5.40	1.33	16.39						2.28	2.83	2.82
50th-Percentile Queue Length [ft/ln]	203.87	135.00	33.29	409.78						56.98	70.74	70.41
95th-Percentile Queue Length [veh/ln]	12.84	9.21	2.40	24.04						4.10	5.09	5.07
95th-Percentile Queue Length [ft/ln]	320.95	230.27	59.92	601.10						102.57	127.32	126.74
d_M, Delay for Movement [s/veh]	0.00	43.13	40.81	25.48	82.56	0.00	0.00	0.00	0.00	32.04	32.47	32.47
Movement LOS		D	D	C	F					C	C	C
d_A, Approach Delay [s/veh]	42.69			74.81			0.00			32.34		
Approach LOS	D			E			A			C		
d_I, Intersection Delay [s/veh]	54.55											
Intersection LOS	D											
Intersection V/C	0.586											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

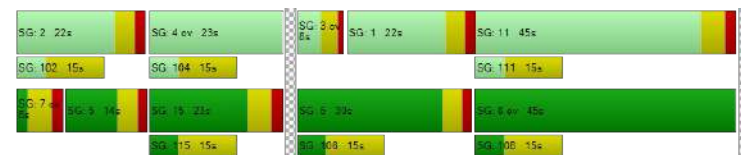


US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	W 34th St			W 34th St			NBFR US 290			NBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Peak Hour Factor	0.9370	0.9370	1.0000	1.0000	0.9370	0.9370	0.9370	0.9370	0.9370	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.77	4.31	2.64	2.80	2.84	7.13	2.22	2.49				
50th-Percentile Queue Length [ft/ln]	19.18	107.63	66.12	69.95	71.10	178.36	55.56	62.20				
95th-Percentile Queue Length [veh/ln]	1.38	7.71	4.76	5.04	5.12	11.52	4.00	4.48				
95th-Percentile Queue Length [ft/ln]	34.52	192.70	119.02	125.90	127.97	287.88	100.00	111.96				
d_M, Delay for Movement [s/veh]	23.89	31.04	0.00	0.00	30.20	30.58	35.17	24.05	26.26	0.00	0.00	0.00
Movement LOS	C	C			C	C	D	C	C			
d_A, Approach Delay [s/veh]	30.19			30.24			29.39			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	29.87											
Intersection LOS	C											
Intersection V/C	0.307											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2019 SCENARIO
AM PEAK HOUR

Name	W 34th St			W 34th St			NBFR US 290			NBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Peak Hour Factor	0.9370	0.9370	1.0000	1.0000	0.9370	0.9370	0.9370	0.9370	0.9370	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.77	4.31	2.64	2.80	2.84	7.13	2.22	2.49				
50th-Percentile Queue Length [ft/ln]	19.18	107.63	66.12	69.94	71.09	178.36	55.55	62.20				
95th-Percentile Queue Length [veh/ln]	1.38	7.71	4.76	5.04	5.12	11.51	4.00	4.48				
95th-Percentile Queue Length [ft/ln]	34.52	192.70	119.02	125.90	127.97	287.87	100.00	111.96				
d_M, Delay for Movement [s/veh]	23.89	31.04	0.00	0.00	30.19	30.58	35.17	24.05	26.26	0.00	0.00	0.00
Movement LOS	C	C			C	C	D	C	C			
d_A, Approach Delay [s/veh]	30.20			30.24			29.39			0.00		
Approach LOS	C			C			C			A		
d_I, Intersection Delay [s/veh]	29.87											
Intersection LOS	C											
Intersection V/C	0.307											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO
AM PEAK HOUR

Name	W 34th St			W 34th St			NBFR US 290			NBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	426	0	0	639	75	391	324	171	0	0	0
Peak Hour Factor	0.9370	0.9370	1.0000	1.0000	0.9370	0.9370	0.9370	0.9370	0.9370	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.02	4.36	7.47	3.59	3.66	8.14	2.26	3.20				
50th-Percentile Queue Length [ft/ln]	0.51	109.11	186.67	89.78	91.51	203.49	56.57	79.94				
95th-Percentile Queue Length [veh/ln]	0.04	7.79	11.98	6.46	6.59	12.82	4.07	5.76				
95th-Percentile Queue Length [ft/ln]	0.92	194.76	299.55	161.61	164.73	320.46	101.83	143.89				
d_M, Delay for Movement [s/veh]	23.05	49.10	0.00	0.00	31.18	31.78	31.79	17.15	27.20	0.00	0.00	0.00
Movement LOS	C	D			C	C	C	B	C			
d_A, Approach Delay [s/veh]	46.65			31.24			25.55			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	32.40											
Intersection LOS	C											
Intersection V/C	0.518											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

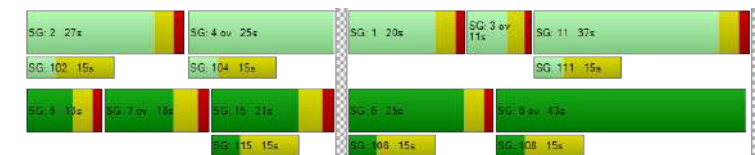


US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO
AM PEAK HOUR

Name	W 34th St			W 34th St			NBFR US 290			NBFR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	46	342	0	0	513	60	314	260	137	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	57	426	0	0	639	75	391	324	171	0	0	0
Peak Hour Factor	0.9370	0.9370	1.0000	1.0000	0.9370	0.9370	0.9370	0.9370	0.9370	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	0.03	4.34	7.43	3.59	3.66	8.13	2.26	3.20				
50th-Percentile Queue Length [ft/ln]	0.77	108.38	185.73	89.86	91.59	203.34	56.62	80.00				
95th-Percentile Queue Length [veh/ln]	0.06	7.75	11.92	6.47	6.59	12.81	4.08	5.76				
95th-Percentile Queue Length [ft/ln]	1.38	193.75	297.95	161.74	164.86	320.27	101.91	144.00				
d_M, Delay for Movement [s/veh]	23.08	48.61	0.00	0.00	31.22	31.82	31.71	17.17	27.23	0.00	0.00	0.00
Movement LOS	C	D			C	C	C	B	C			
d_A, Approach Delay [s/veh]	46.18			31.28			25.52			0.00		
Approach LOS	D			C			C			A		
d_I, Intersection Delay [s/veh]	32.29											
Intersection LOS	C											
Intersection V/C	0.518											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



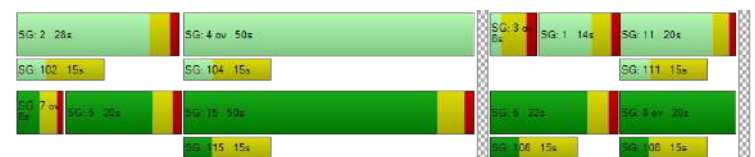
US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	34th St			34th St			NBR US 290			NBR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Peak Hour Factor	0.9700	0.9700	1.0000	1.0000	0.9700	0.9700	0.9700	0.9700	0.9700	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	2.36	7.69	6.22	4.09	4.36	12.93	10.06	10.18				
50th-Percentile Queue Length [ft/ln]	59.02	192.32	155.50	102.31	109.04	323.30	251.39	254.50				
95th-Percentile Queue Length [veh/ln]	4.25	12.24	10.31	7.37	7.79	18.83	15.26	15.41				
95th-Percentile Queue Length [ft/ln]	106.24	306.04	257.75	184.16	194.67	470.74	381.40	385.31				
d_M, Delay for Movement [s/veh]	18.13	28.38	0.00	0.00	47.29	51.93	63.85	47.22	60.87	0.00	0.00	0.00
Movement LOS	B	C			D	D	E	D	E			
d_A, Approach Delay [s/veh]	26.46			48.33			54.80			0.00		
Approach LOS	C			D			D			A		
d_I, Intersection Delay [s/veh]	45.26											
Intersection LOS	D											
Intersection V/C	0.455											

Ring 1	2	4	-	3	1	11	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	8	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2019 SCENARIO

PM PEAK HOUR

Name	34th St			34th St			NBR US 290			NBR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Peak Hour Factor	0.9700	0.9700	1.0000	1.0000	0.9700	0.9700	0.9700	0.9700	0.9700	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	2.43	8.17	5.33	2.94	3.07	9.28	7.28	6.96				
50th-Percentile Queue Length [ft/ln]	60.63	204.37	133.22	73.50	76.85	232.05	182.06	174.07				
95th-Percentile Queue Length [veh/ln]	4.37	12.86	9.11	5.29	5.53	14.28	11.71	11.29				
95th-Percentile Queue Length [ft/ln]	109.13	321.59	227.86	132.31	138.33	356.96	292.70	282.25				
d_M, Delay for Movement [s/veh]	22.47	33.86	0.00	0.00	33.60	35.44	44.48	34.00	39.40	0.00	0.00	0.00
Movement LOS	C	C			C	D	D	C	D			
d_A, Approach Delay [s/veh]	31.72			34.01			38.07			0.00		
Approach LOS	C			C			D			A		
d_I, Intersection Delay [s/veh]	35.37											
Intersection LOS	D											
Intersection V/C	0.403											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

EXISTING GEOMETRY 2040 SCENARIO
PM PEAK HOUR

Name	34th St			34th St			NBR US 290			NBR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	804	0	0	575	167	468	864	381	0	0	0
Peak Hour Factor	0.9700	0.9700	1.0000	1.0000	0.9700	0.9700	0.9700	0.9700	0.9700	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	3.39	12.16	9.08	5.38	5.74	20.93	16.38	17.03				
50th-Percentile Queue Length [ft/ln]	84.83	303.89	226.91	134.58	143.45	523.36	409.55	425.73				
95th-Percentile Queue Length [veh/ln]	6.11	17.87	14.02	9.19	9.67	29.94	23.12	24.64				
95th-Percentile Queue Length [ft/ln]	152.69	446.83	350.43	229.71	241.67	748.59	577.91	616.07				
d_M, Delay for Movement [s/veh]	21.42	36.89	0.00	0.00	48.43	53.53	110.80	73.83	106.73	0.00	0.00	0.00
Movement LOS	C	D			D	D	F	F	F			
d_A, Approach Delay [s/veh]	33.98			49.58			91.24			0.00		
Approach LOS	C			D			F			A		
d_I, Intersection Delay [s/veh]	65.81											
Intersection LOS	E											
Intersection V/C	0.833											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

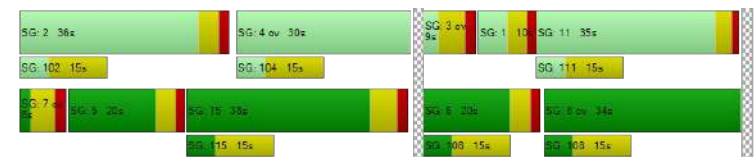


US290 NORTHBOUND FRONTAGE ROAD AT WEST 34TH STREET

PROPOSED GEOMETRY 2040 SCENARIO
PM PEAK HOUR

Name	34th St			34th St			NBR US 290			NBR US 290		
Approach	Eastbound			Westbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Base Volume Input [veh/h]	149	646	0	0	462	134	376	694	306	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.2450	1.2450	1.0000	1.0000	1.2450	1.2450	1.2450	1.2450	1.2450	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	186	804	0	0	575	167	468	864	381	0	0	0
Peak Hour Factor	0.9700	0.9700	1.0000	1.0000	0.9700	0.9700	0.9700	0.9700	0.9700	1.0000	1.0000	1.0000
50th-Percentile Queue Length [veh/ln]	3.56	12.76	9.43	5.53	5.89	21.91	17.15	17.77				
50th-Percentile Queue Length [ft/ln]	88.89	319.09	235.83	138.17	147.21	547.76	428.87	444.35				
95th-Percentile Queue Length [veh/ln]	6.40	18.62	14.47	9.38	9.87	31.55	24.39	25.90				
95th-Percentile Queue Length [ft/ln]	160.00	465.57	361.76	234.56	246.70	788.87	609.84	647.38				
d_M, Delay for Movement [s/veh]	22.66	38.97	0.00	0.00	49.64	54.85	121.52	81.99	116.64	0.00	0.00	0.00
Movement LOS	C	D			D	D	F	F	F			
d_A, Approach Delay [s/veh]	35.91			50.81			100.49			0.00		
Approach LOS	D			D			F			A		
d_I, Intersection Delay [s/veh]	71.23											
Intersection LOS	E											
Intersection V/C	0.835											

Ring 1	2	-	4	3	1	11	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	7	5	15	6	-	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



APPENDIX F

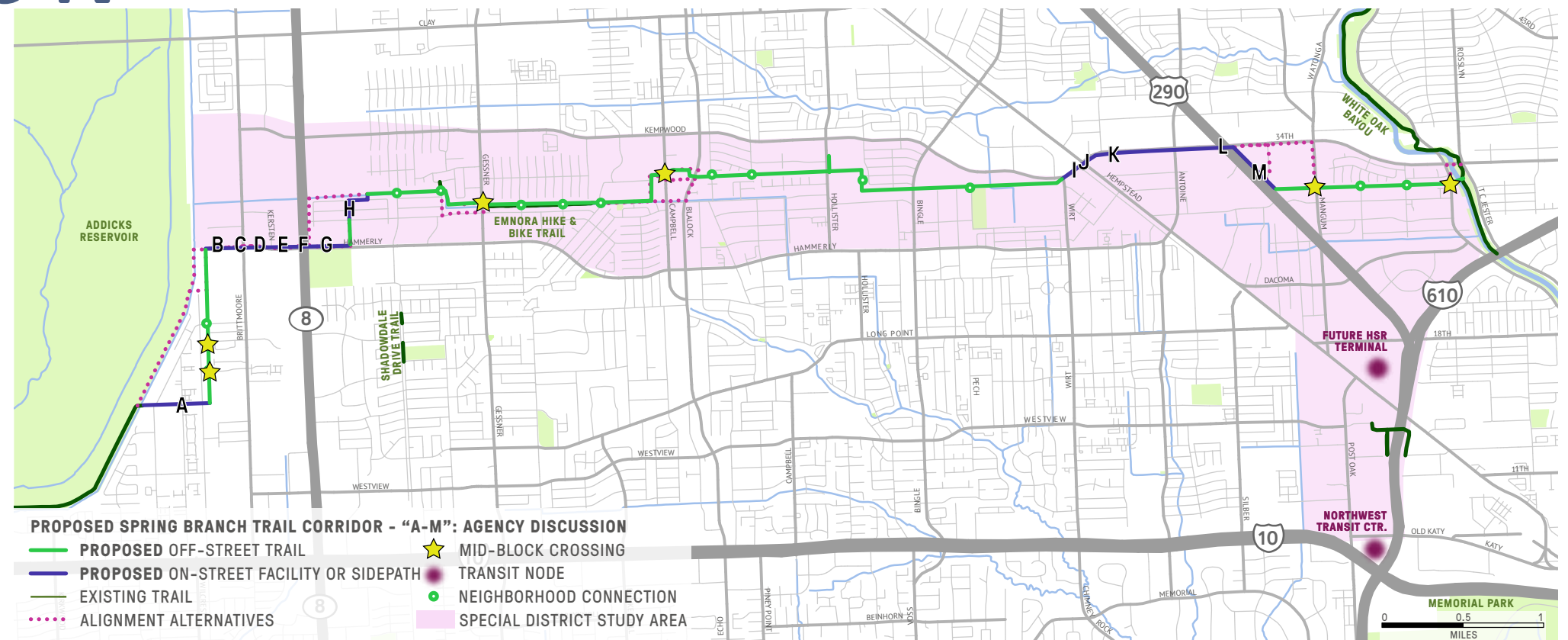
TECHNICAL MEMOS

FOR AGENCY

COORDINATION

Map below corresponds with Agency Coordination Meeting discussion background paper (see the following pages)

DRAFT - SUBJECT TO CHANGE



Addicks to Beltway 8	Beltway 8 to Gessner	Gessner to Blalock	Blalock to Wirt (HPB in Design)	Wirt to Hwy 290	Hwy 290 to White Oak Bayou
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SEGMENTS: FROM ADDICKS TO WHITE OAK BAYOU

DRAFT 5/16/2019

Spring Branch Trail - Agency Coordination Meetings

May 16, 2019

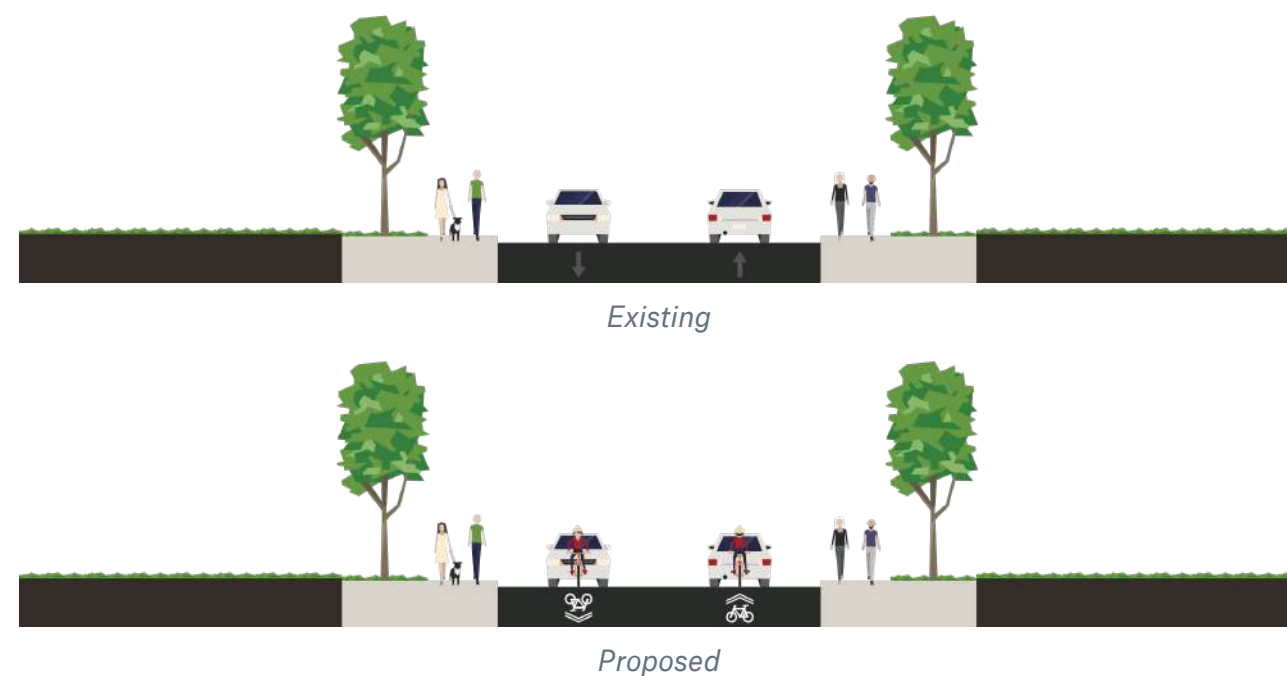
- Letters [A] through [M] correspond with letters on the 11 x 17 printed corridor map for on-street trail connections discussion.
- Mid-block crossings will be discussed as well and are demarcated with a yellow star on the map. ★

Addicks to Beltway 8

[A] Chatterton Drive

Proposed Facility: Shared neighborhood bicycle route

Existing & Proposed Cross-sections:



Field Photos:



Newly Constructed Sidewalk & Roadway



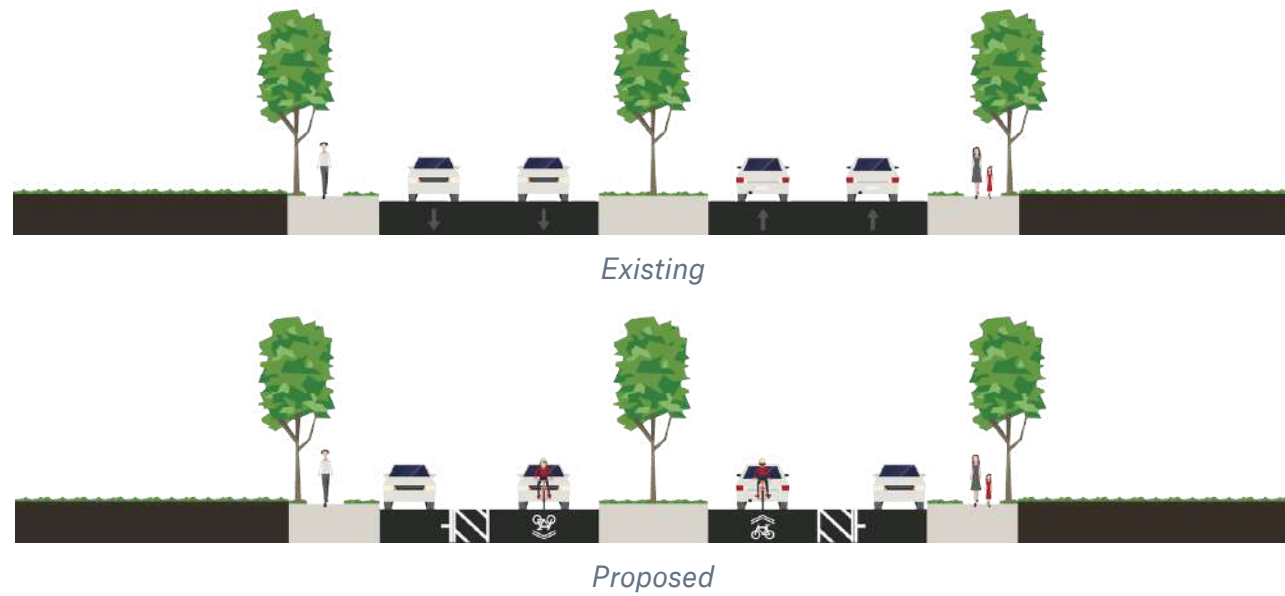
Bridge to Addicks



Sherwood Forest and Chatterton looking towards Addicks Reservoir

[B] Hammerly Blvd between Centerpoint Easement & Brittmoore

Proposed Facility: Shared roadway with striped parking lane



Field Photos:



At CenterPoint Easement



Looking East from Easement

[C] Hammerly Blvd at Brittmoore Road

Intersection Operations:

- Recommended changes at Brittmoore Road intersection
 - Eastbound approach: Remove one dedicated through lane on Hammerly Blvd
 - Westbound approach: Remove through-left lane on Hammerly Blvd

Intersection	Existing V/C	Existing Delay	Existing LOS	Projected V/C	Projected Delay

PM Peak Hour	0.665	52.4	D	0.696	54.56
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[D] [E] Hammerly Blvd between Brittmoore Road and Beltway 8

Proposed Facility:

- [D]: Between Brittmoore and Kersten: Separated bikeway
- [E]: Between Kersten and Beltway 8 SB Frontage Road: Sidepath

Existing & Proposed Cross-sections:



Existing, Brittmoore to Kersten



Preliminary Proposed, Brittmoore to Kersten



Existing, Kersten to Beltway 8



Preliminary Proposed, Kersten to Beltway 8

Field Photos:



Looking East, northside of Hammerly



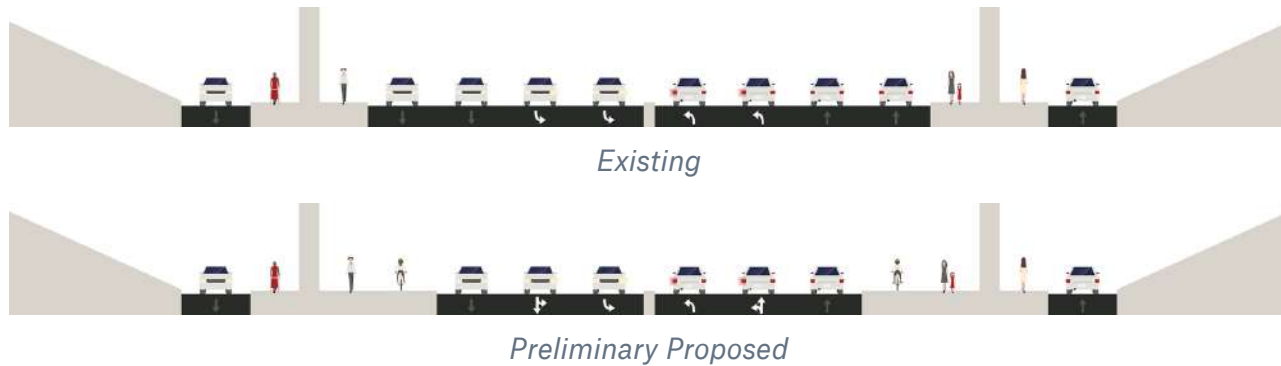
Looking West, southside of Hammerly

[F] Hammerly Blvd at Beltway 8 Underpass

Proposed Facility: Separated bikeway

- Projected intersection analysis is **preliminary**
 - Included conversion of cross-section at underpass of four lanes (two left-turn lanes and two through lanes) into three lanes (one left-turn lane, one left-through lane, one through lane)

Existing & Proposed Cross-sections:



Intersection Operations (Preliminary):

AM Peak Hour

Intersection	Existing V/C	Existing Delay	Existing LOS	Projected V/C	Projected Delay
Hammerly at SB Beltway 8	0.782	40.9	D	0.804	48.51
Hammerly at NB Beltway 8	0.507	37.1	D	0.743	36.08

Intersection	Existing V/C	Existing Delay	Existing LOS	Projected V/C	Projected Delay
Hammerly at SB Beltway 8	0.782	40.9	D	0.804	48.51
Hammerly at NB Beltway 8	0.507	37.1	D	0.743	36.08

PM Peak Hour

Intersection	Existing V/C	Existing Delay	Existing LOS	Projected V/C	Projected Delay
Hammerly at SB Beltway 8	0.765	40.3	D	0.813	52.41
Hammerly at NB Beltway 8	0.711	36.3	D	0.797	42.59

Field Photos:



North side — traffic box choke point: 6' to U-turn

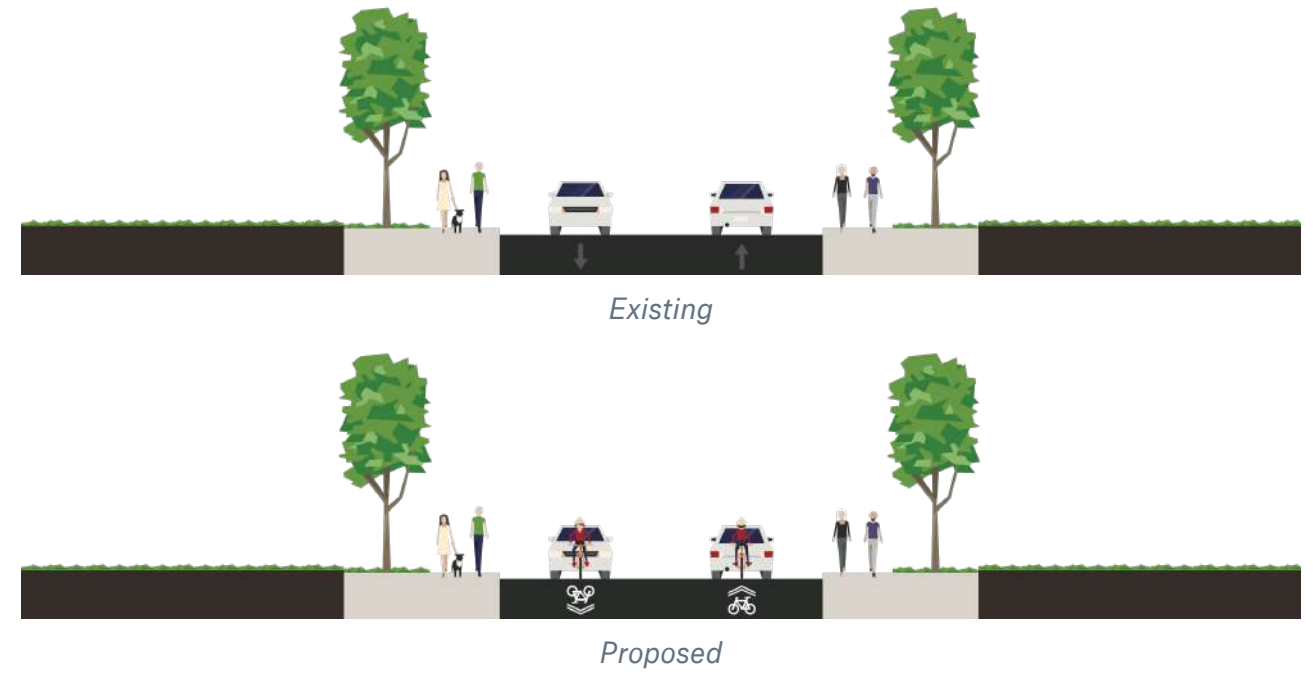
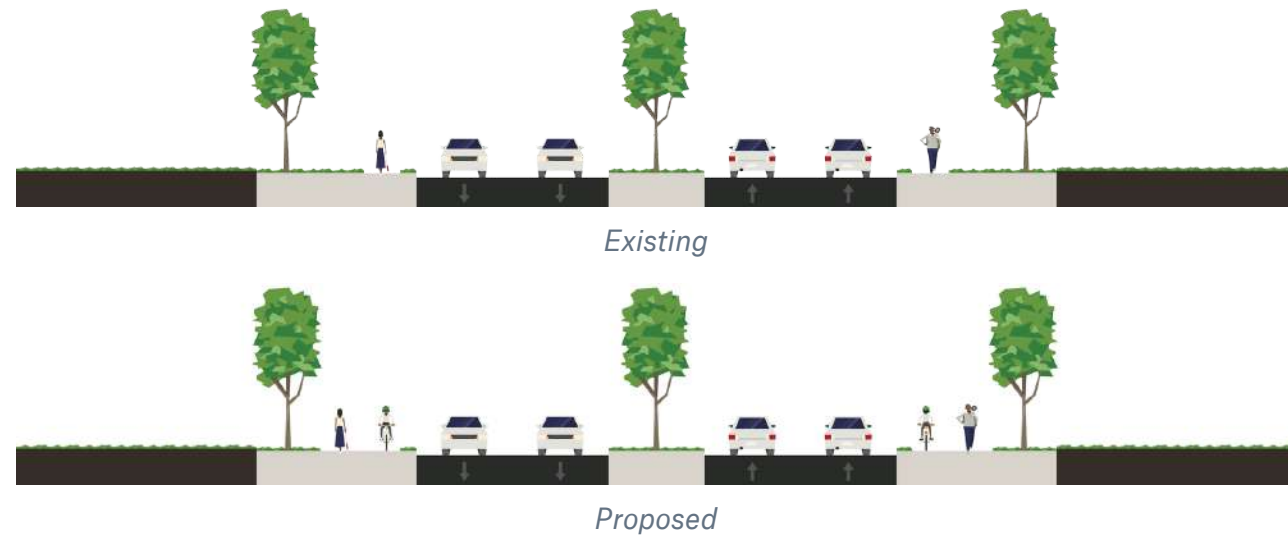


Both sides — 2.5' diam. columns, centered in 20' back of curb to back of curb, spaced at 16' C-C

Beltway 8 to Gessner

[G] Hammerly Blvd between Beltway 8 and Guthrie Center

Existing & Proposed Cross-sections:



Field Photos:



Northside of Hammerly just east of BW 8

Northside of Hammerly near Guthrie Center

[H] Guthrie Center through neighborhood to CenterPoint Easement

Proposed Facility: Shared neighborhood bicycle route

Existing & Proposed Cross-sections:

Field Photos:



Neighborhood street from Guthrie Center up towards CenterPoint easement



Neighborhood connection to CenterPoint easement coming from Guthrie Center

Gessner Crossing ★



CenterPoint Easement at Gessner looking East



CenterPoint Easement at Gessner looking East

Gessner to Blalock

Campbell Crossing ★



Campbell Road sidewalks



Campbell Road mid-block crossing potential

Blalock to Wirt

HPB Segment in Design

Wirt to HWY 290

[I] Kempwood between Wirt and Hempstead

Proposed Facility:

- Between Todd and Hempstead: Separated Bikeway

Existing & Proposed Cross-sections:



Existing



Proposed

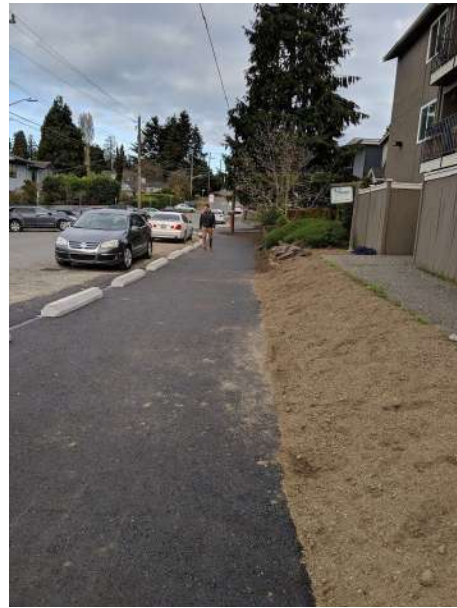
Field Photos:



Looking East at Wirt along WB Kempwood



RR Crossing for EB Kempwood



To improve crossings for both people bicycling and people walking, a shared space for both bicycles and pedestrians is recommended at the RR tracks.



Example: Nuens Road in Spring Branch - Separated Barrier for Pedestrians

[J] Kempwood/34th at Hempstead

Proposed Facility: Separated bikeways

Intersection Operations:

- Recommended changes at Hempstead intersection
 - Eastbound approach: Remove one dedicated left-turn lane
 - Westbound approach: Remove dedicated right-turn lane

Intersection	Existing V/C	Existing Delay	Existing LOS	Projected V/C	Projected Delay
AM Peak Hour	0.582	40.8	D	0.631	43.0
PM Peak Hour	0.571	39.1	D	0.686	44.8

[K] 34th between Hempstead and US 290

Proposed Facility: Separated bikeways

Existing & Proposed Cross-sections:



Existing



Proposed

Field Photos:



34th Street Between Hempstead and 290



34th at 290

HWY 290 to White Oak Bayou

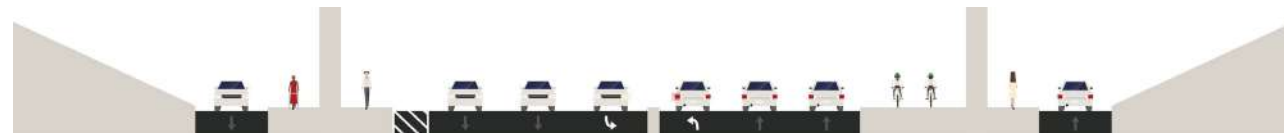
[L] Between US 290 SB Frontage Road and US 290 NB Frontage Road

Proposed Facility: Sidepath along south side of 34th St

Existing & Proposed Cross-sections:



Existing



Preliminary Proposed

[M] Along US 290 NB Frontage Road

Proposed Facility: Sidewalk along east side of US 290

Existing & Proposed Cross-sections:



Existing



Proposed

Field Photos:



290 frontage road looking south



290 frontage road looking north

Mangum Crossing ★



CenterPoint easement crossing at Mangum



Mangum from CenterPoint easement

TC Jester Crossing ★



TC Jester crossing at CenterPoint easement



TC Jester at CenterPoint easement

White Oak Bayou Crossing ★



Centerpoint Easement from White Oak Bayou Greenway (NB)



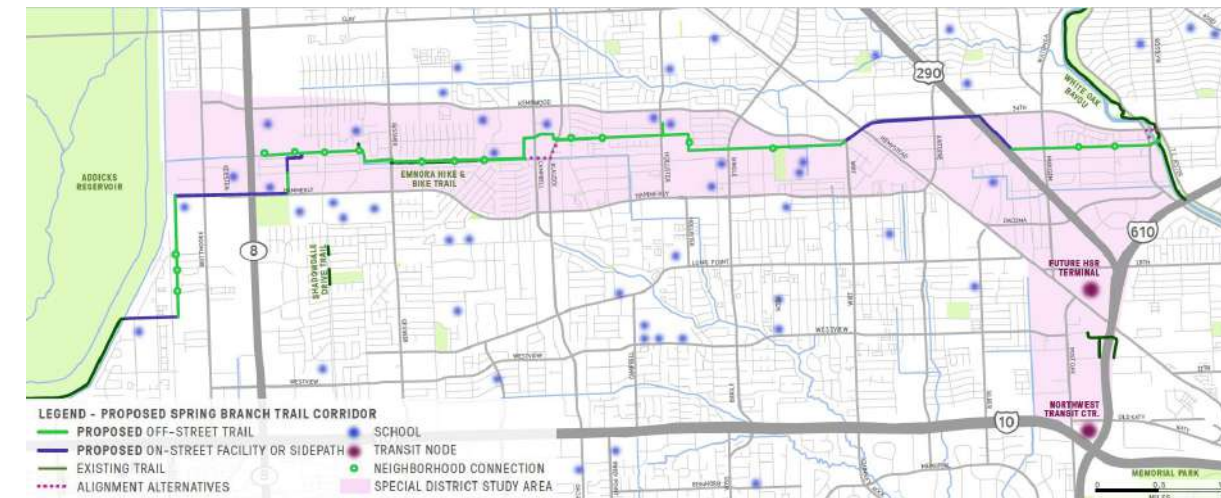
34th St bridge looking west

Spring Branch Trail Special District Study – Background Paper

Purpose of the Study:

The Spring Branch Trail Special District Study will provide the schematic-level planning for a regional pedestrian and bicycle connection utilizing CenterPoint easements and public rights-of-way to make high-comfort walking and biking connections between the Energy Corridor trails at Addicks Reservoir and the White Oak Bayou Greenway connecting to Downtown. The desired corridor was preliminarily identified in the Houston Bike Plan, the Spring Branch Management District's Comprehensive Plan, and the Houston Parks Board's "Beyond the Bayous" plan and will connect multiple schools, neighborhoods, and other places of interest. This study will present the entire regional corridor alignment through a schematic drawing that can be implemented in phases through partnerships with the Spring Branch Management District and other public entities. This study will not engineer the corridor alignment, but a draft schematic has been created and will be rendered to illustrate the desired route and connections. It is understood that the management district coordinates with all appropriate agencies and stakeholders throughout implementation.

In addition to the linear regional trail connection, this study will also present recommendations for regional and local bike connections to and from the trail via high-comfort on-street bikeways. The proposed regional trail corridor can be seen in the blue and green lines on the map below.



Public Involvement and Barrier Identification:

The consultant team reached out to the public at a public meeting in early March 2019 and through an online interactive website specific to this project (map.social) to collect input on desired destinations, opportunities, and barriers to implementing an interconnected trail through Spring Branch. Highways – specifically, US 290, Hempstead Highway, and Beltway 8 – were identified as significant barriers and were also acknowledged as necessary and critical to cross to make safe, seamless regional walking and biking connections.

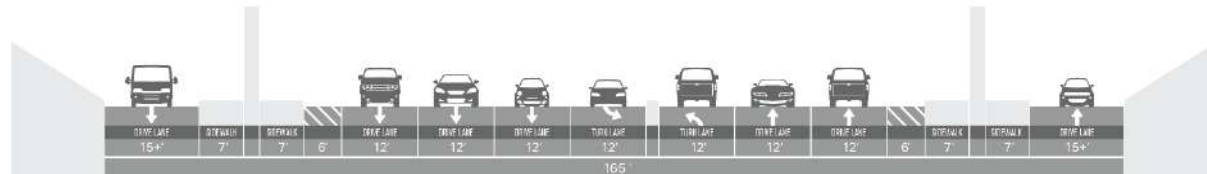
To address both the Hempstead Highway and US 290 barriers, 34th Street was prioritized for on-street bicycle facilities as the most direct and cost effective way of crossing the UPRR railroad parallel to Hempstead, Hempstead Highway, and US 290. (As shown in the map above.)

Highway 290 and 34th Street Preferred Alignment:

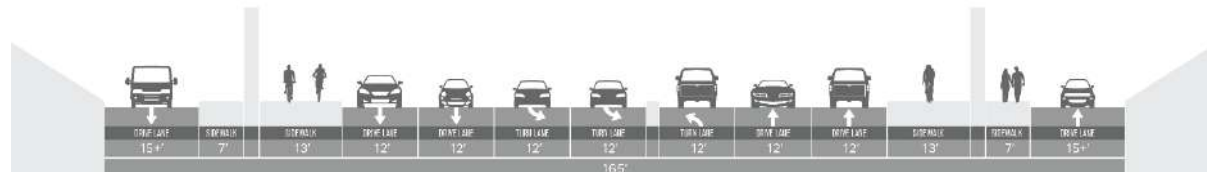
Based on data analysis and deliberation of multiple alternatives, the preferred trail alignment that appears most viable would cross under Highway 290 at 34th Street and run along the northbound frontage road via a shared-use path outside the curb to the CenterPoint easement. With thoughtful signage, updated traffic controls, a clear designated location for people to walk/bike with wayfinding (including pavement markings), and best practice safety countermeasures to notify cars of two-way shared use path, this location could set the standard to be emulated at other ped/bike crossings at major highways all over Houston. The consultant team talked with statewide and national experts (including FHWA representatives) to learn of similar instances in other cities where shared use paths are adjacent to a frontage road within a highway corridor (will be presented Friday).

The existing and proposed cross sections and schematic drawings can be seen below. Please note that one of the alternatives at this 34th Street and US 290 location that the team considered supporting would slightly narrow the traffic lanes and would remove at least one westbound through lane of traffic to allow for a larger ped/bike space behind the curb. However, after traffic analysis and understanding of the existing roadway geometry, the proposed recommendation will not remove any existing lanes and the pedestrian/bicycle space could be increased by moving the curbs outward into a hatched area adjacent to the outside lanes (see below). A brief discussion on traffic analysis performed is presented at the end of this document. This is the preferred recommendation due to its ability to connect across the US 290 barrier, supporting the regional trail connections without impacting traffic capacity, spending a large sum of money on a bridge, or detouring too far south or north of the CenterPoint easement alignment.

Existing Cross Section: 34th Street under US 290 (looking east)



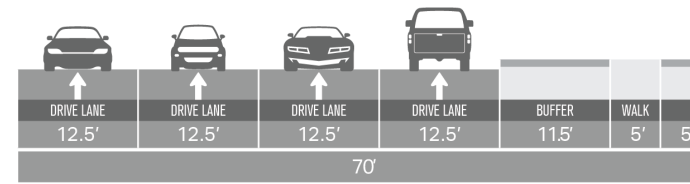
Proposed Cross Section: 34th Street under US 290 (looking east)



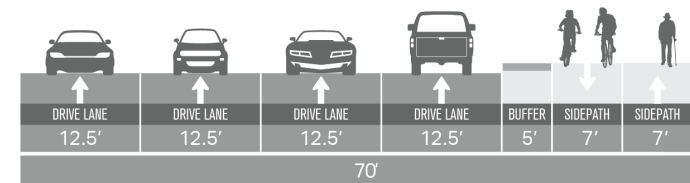
Schematic Drawing Illustrating Proposed Trail Connection at 34th and US 290



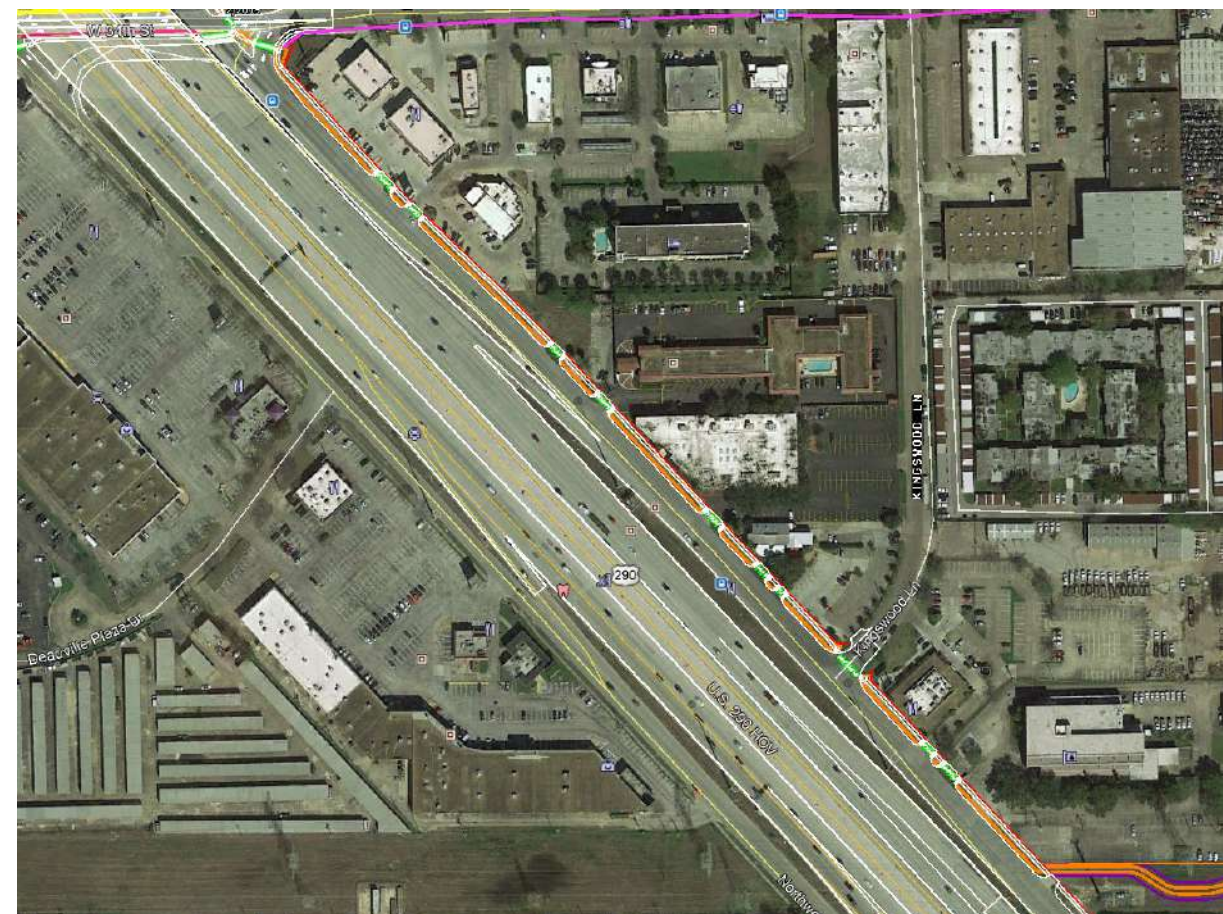
Existing Northbound US 290 Frontage Road South of 34th Street



Proposed Northbound US 290 Frontage Road South of 34th Street



Schematic Drawing Illustrating Proposed Trail Connection Down the Northbound 290 Frontage Rd



US 290 Alternatives Considered:

The consultant team considered multiple alternatives to navigate through or around the barrier of US 290 to make the connection between Spring Branch and the White Oak Bayou Greenway, with the ultimate goal to access downtown. The following alternatives were considered in addition to the 34th Street alignment recommendation presented above. Pros, cons, and conclusions are presented for each of these alternatives that were considered.

Alternatives Considered:

a. CenterPoint Corridor – Bridge Over US 290

The bright pink lines on this map are from Houston Parks Board’s “Beyond the Bayous” planning document that shows several trail alternatives for making the connection to White Oak Bayou from the Spring Branch vicinity. The discussion here considers the bottom pink line that follows along the CenterPoint easement crossing Hempstead Road (UPRR railroad tracks and roadway) as well as US 290. The red square indicates where the current (to be constructed in early 2020) trail terminates at Wirt Road and Kempwood Drive at the CenterPoint easement. The red circle indicates the location where a bridge would be needed to cross over Highway 290 since there is no current underpass.

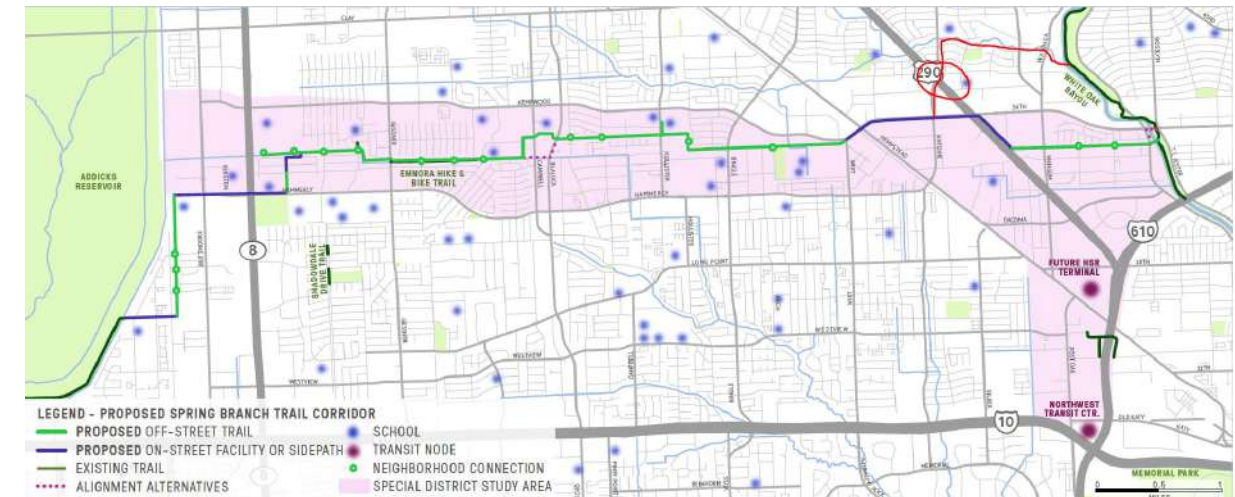
- **Pros:** Direct continuation of off-street path without any on-street needs.
- **Cons:** A Large ped/bike bridge over US 290 would be very expensive and is likely to be infeasible due to interference with power lines within the same space above the corridor. There is not currently a formal crossing at that CenterPoint easement and Hempstead/railroad. Creating a new railroad crossing takes years and extensive coordination with the railroad company (UPRR) and seems unrealistic given all that may take place within the Hemsptead corridor in the near and long term (tollway, elevated high-speed rail).
- **Conclusion:** Very expensive, would extend overall project timeline, and possibly unrealistic given the constraints of both the existing power lines and working with UPRR. There are only a few locations where crossing under US 290 could be assessed further within a reasonable distance from the trail connection at Kempwood/Wirt including at 34th Street and Highway 290, at Antoine and Highway 290, and Mangum and Highway 290 (see below). This alternative was not considered to be a viable option.
- **Map:**



b. Antoine Crossing Instead of 34th Street

Instead of continuing along 34th street to the 290 intersection, following Antoine Drive to cross under US 290 and then utilizing a drainage ditch towards White Oak Bayou (shown in map below) was considered.

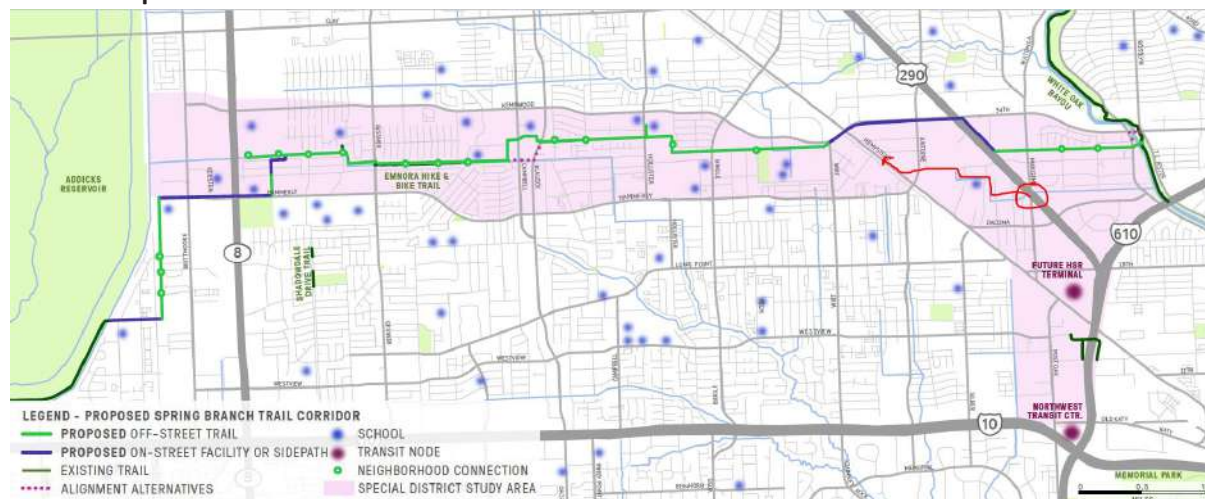
- **Pros:** Connection to White Oak Bayou could be all off-street (except for Antoine) utilizing the drainage ditch
- **Cons:** Existing Antoine Drive traffic volumes and ROW width limit the ability to provide a high comfort bikeway within ROW without a full corridor rebuild or heavy modifications to the median. The most challenging constraint for this alignment is related to the drainage ditch. The ditch easement is owned by adjacent private property owners with the property line at the center of the drainage ditch (see second map below – taken from HCAD showing property lines within the drainage ditch). This would require easements or encroachment on over one hundred private property owners. Also, bridges where the gully goes underneath (e.g., Mangum) would need to be raised to allow for the trail to go underneath. Additionally, this alignment deters from the study goal of a more direct path towards downtown by angling north instead.
- **Conclusion:** It would be challenging to provide a safe trail along Antoine without either a corridor rebuild or major modification to the median and extremely unlikely to get all property owners on board to have a trail adjacent or within the drainage easement. This alignment would take an extended amount of time, have a high cost, and would require challenging property easement coordination. This was not considered to be a viable option.
- **Map:**



c. Mangum Crossing Instead of 34th Street

Another roadway crossing option to go under US 290 is at Mangum Road. There is not a clear route to get from the new trail near Wirt/Kempwood down towards Mangum and US 290. There are options (generally shown in map below) but they are not direct and would utilize multiple on-street corridors as well as potentially a drainage ditch.

- **Pros:** Neighborhood streets could be utilized to get to the Mangum intersection to cross under US 290. There is a Harris County Flood Control District easement just east of the Mangum/US 290 intersection that could lead directly to TC Jester and the White Oak Bayou.
- **Cons:** Reaching the Mangum/US 290 intersection would be very challenging from the Kempwood/Wirt trailhead location. An on-street route would require zig-zagging along roads that may have high-truck volumes due to industrial land uses present within the area. There is a disconnected drainage ditch west of US 290 that could be explored, but the land is private property (not HCFCF or other public entity). Additionally, the Mangum/US 290 intersection is skewed and does not provide clear pedestrian refuges nor visibility to reach the HCFCF drainage ditch east of US 290.
- **Conclusion:** The challenges to make a clear connection to Wirt/Kempwood from the Mangum/US 290 intersection as well as the insufficient visibility for peds/bikes at that location make this alternative undesirable. This was not considered to be a viable option.
- **Map:**



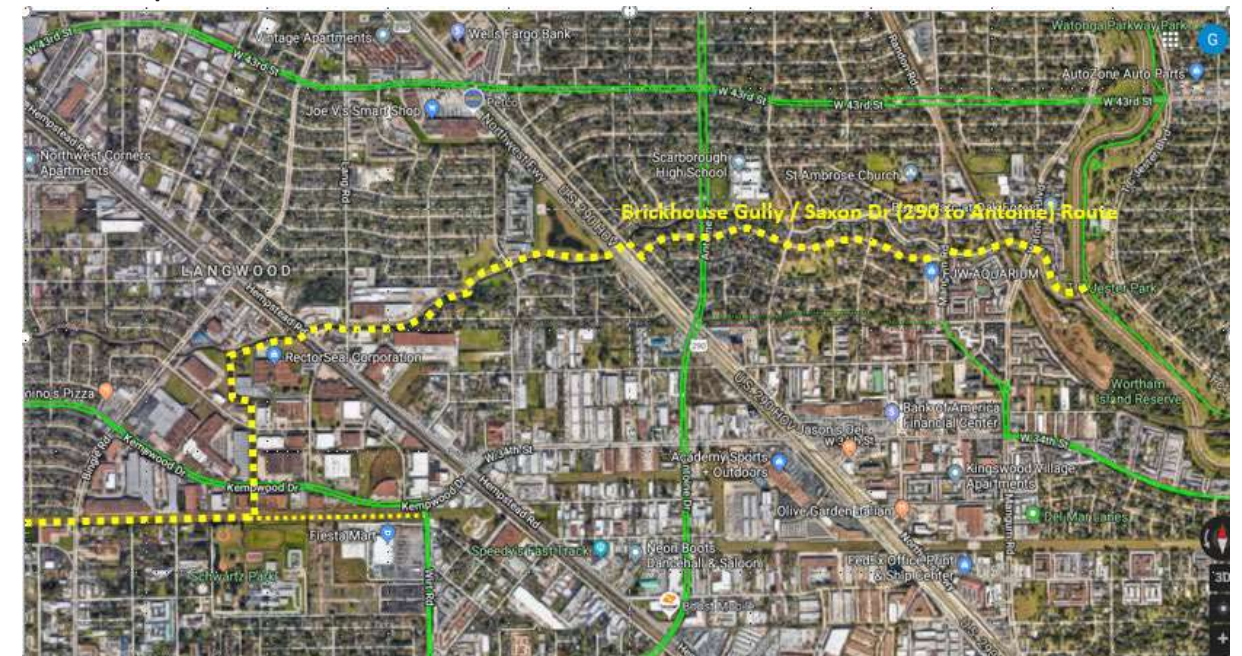
d. Dacoma Crossing Instead of 34th Street

The crossing at Dacoma and US 290 was also examined but is even further south of where the Mangum and US 290 crossing could be, without logical connections to the trailhead at Wirt/Kempwood. Without zig-zagging through city streets (which is undesirable for a bicycle route and is counter to the Spring Branch District’s goal of creating a bicycle spine through the district) and crossing Hempstead Highway out-of-direction (southbound), this does not prove to be a viable connection.

e. Brickhouse Gully Alternative – Provided for consideration by Ana from TxDOT

Text from Ana: “Another alternative to connect the Spring Branch CenterPoint trail to White Oak Bayou maybe to jog north and try to cross under 290 and Hempstead at Brickhouse Gully. This alternative would be very high comfort and for the most part could provide an off-street trail. Past US 290, Saxon Dr is a neighborhood street with low traffic volumes. See screen shot below.”

- **Pros:** This could potentially be a high-comfort route directly from the CenterPoint easement trail Houston Parks Board will be constructing in early 2020. This route would utilize space adjacent to a drainage ditch that connects to the White Oak Bayou
- **Cons:** See the HCAD screenshot above for the Antoine alternative. The property owners adjacent to the Brickhouse Gully own to the centerline of the drainage channel, making this a complicated route to create a trail because of the private property concerns. Not only would coordination be required with individual private property owners, the bridges (and railroad) where the gully goes under would need to be raised to accommodate walkers/bikers to continue along the gully. Currently, the bridges are not high enough for clearance.
- **Conclusion:** This would be cost-prohibitive as well as time-consuming to coordinate with individual property owners to determine feasibility. This does not seem to be a viable connection between the trail at Wirt/Kempwood and the White Oak Bayou.
- **Map:**



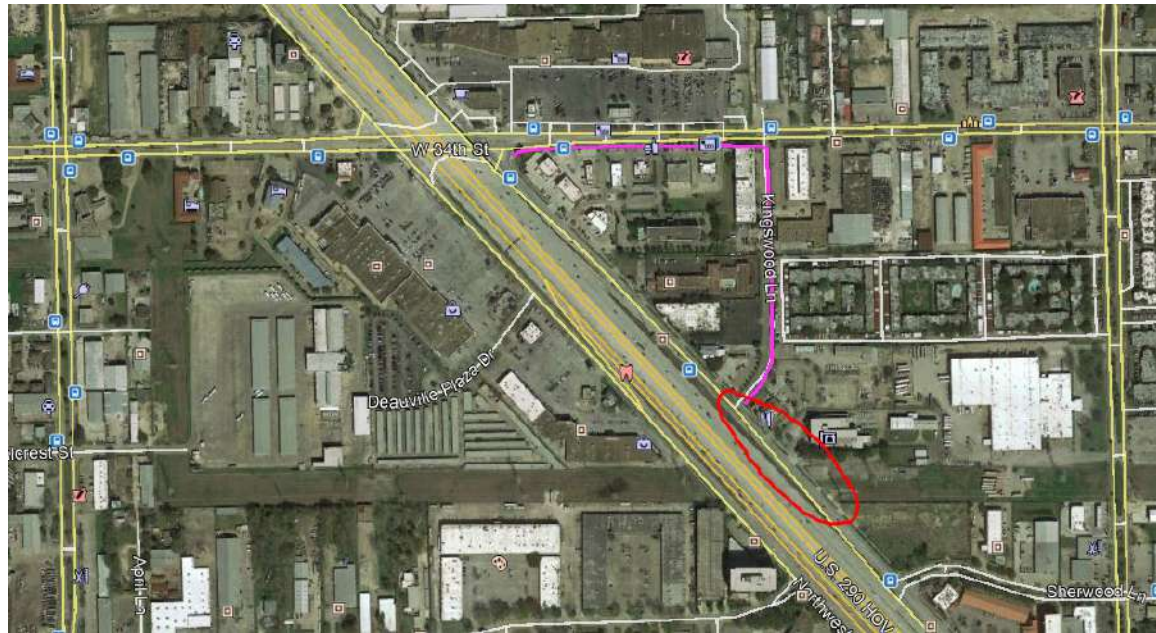
f. Avoiding Some Frontage Road Using 34th Street East of 290 and Kingswood

To avoid the frontage road as a shared-use path along the northbound US 290 frontage road, the team looked into continuing the bikeway along 34th Street east of US 290 and going down Kingswood Lane in a bike lane to meet back up with the frontage road (as to reduce the length of frontage road shared-use path). Part of this alignment would still utilize a small portion of frontage road to lead up to the CenterPoint easement going east towards White Oak Bayou. The red circle shows the small section that would still need to utilize the frontage road to make the connection.

- **Pros:** This would limit the number of frontage road conflict points with a shared-use path and would still direct walkers/bikers to the CenterPoint easement trail towards White Oak Bayou.
- **Cons:** There is limited right-of-way on 34th Street east of US 290 and no excess traffic capacity to take a lane to create a bike lane. There is also very limited right-of-way for a wide sidepath along 34th Street. Field visits along Kingswood indicated a high percentage of truck traffic due to adjacent land uses. In addition, there are concerns cyclists will still utilize the recently constructed sidewalk along the Frontage road for a more direct connection between the

easement and 34th Street. Field visits indicate cyclist are already using this sidewalk as a bicycle route.

- **Conclusion:** Given the inability to provide for a bike lane east of US 290 on 34th Street without a corridor rebuild or ROW acquisition, this is not a viable option. In addition, bicyclist behavior led the consultant team to prefer a shared-use path from the easement to US 290 to provide safe crossing treatments at each driveway.
- **Map:**

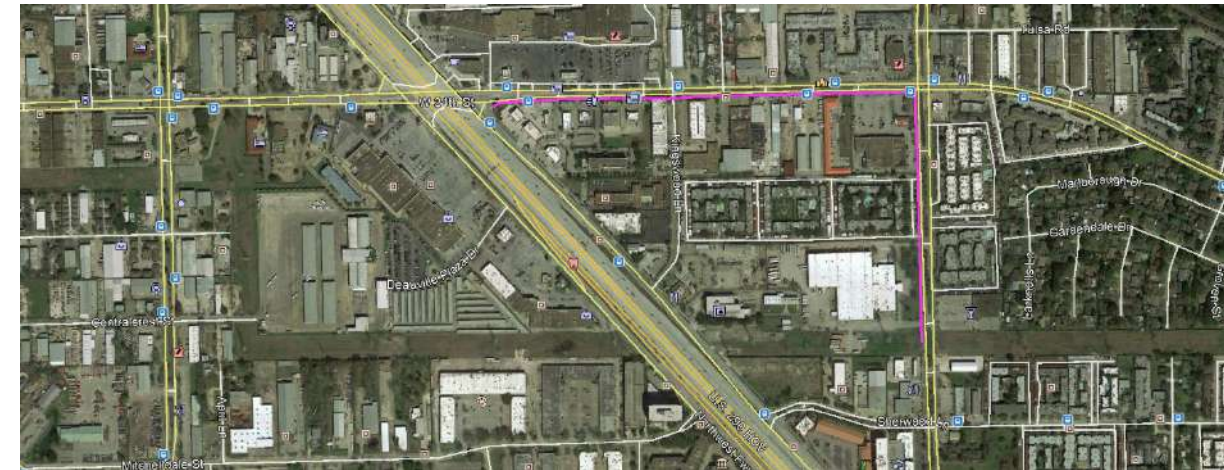


g. Avoiding Frontage Road Completely Using 34th Street East of 290 and Mangum

To completely avoid the shared-use path along the northbound 290 frontage road, the team looked into continuing the bike lanes along 34th Street east of US 290 and continuing south along Mangum Road with a bike lane to meet back up with the CenterPoint easement. The pink lines show this alternate corridor making the connection.

- **Pros:** This would completely avoid the frontage road conflict points with a shared-use path and would still direct walkers/bikers to the CenterPoint easement trail towards White Oak Bayou.
- **Cons:** There is limited right-of-way on 34th Street east of US 290 as mentioned above and no excess traffic capacity to take a lane to create a bike lane. Installing a bicycle facility on Mangum Road would require corridor rebuild or heavy modifications to the median.
- **Conclusion:** Given the limited right-of-way and capacity on both corridors and the amount of corridor construction (and cost) required for a high comfort bicycle facility, this was not considered to be a viable option. Most cyclists may continue along the frontage road regardless of this alternative, as it is a more direct route from the CenterPoint easement to the rest of the Spring Branch Trail along 34th Street.

- **Map:**



Data Analysis

The consultant team performed traffic capacity analysis at all intersections along the corridor for both existing and proposed alignments for the years 2019 and 2040. The analyses support our recommendations. The tables below indicate that locations where changes to geometry are proposed to support the addition of a high comfort bicycle facility do not have a significant impact on vehicular capacity.

Traffic Capacity Analysis - Spring Branch Trail
July 2019

ID	AM Peak Hour Intersection Name	Existing 2019				Proposed 2019 (Optimized)				Existing 2040* (Optimized)				Proposed 2040* (Optimized)			
		Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS
	SBFR BW 8 at Hammerly Blvd	EB Right	0.782	47.8	D	EB Right	0.780	47.3	D	SB Left	0.986	117.8	F	SB Right	0.953	96.3	F
	NBFR BW 8 at Hammerly Blvd	WB Right	0.604	37.1	C	WB Right	0.629	33.9	D	NB Right	0.762	57.3	E	NB Right	0.761	57.2	E
	Hammerly Blvd at Brittmoore Rd	SB Left	0.507	37.1	D	SB Left	0.534	37.2	D	SB Left	0.632	42.7	D	SB Left	0.665	42.9	D
	Gessner Rd at Emnora Ln	EB Left	0.573	29.9	C	EB Left	0.583	27.6	C	EB Left	0.749	40.9	D	EB Left	0.749	40.9	D
	Kempwood Dr at Wirt Rd	WB Left	0.638	28.8	C	WB Left	0.638	28.8	C	WB Left	0.793	42.4	D	WB Left	0.793	42.4	D
	Hempstead Rd at 34th St	SWB Left	0.501	35.5	D	SWB Left	0.549	31.9	C	SWB Left	0.623	40.0	D	SWB Left	0.683	41.1	D
	W 34th at Antoine	EB Left	0.536	23.4	C	EB Left	0.569	25.3	C	NB Left	0.67	32.9	C	EB Left	0.569	27.3	C
	SBFR US 290 at 34th St	EB Right	0.485	30.3	C	EB Right	0.450	30.0	C	EB Right	0.482	25.3	C	EB Right	0.561	34.9	C
	NBFR US 290 at 34th St	NWB Left	0.307	29.9	C	NWB Left	0.307	29.9	C	EB Thru	0.518	32.4	C	EB Thru	0.518	32.3	C

ID	PM Peak Hour Intersection Name	Existing 2019				Proposed 2019 (Optimized)				Existing 2040* (Optimized)				Proposed 2040* (Optimized)			
		Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS	Worst Mvmt	V/C	Delay (s/veh)	LOS
	SBFR BW 8 at Hammerly Blvd	EB Right	0.765	51.5	D	EB Right	0.744	42.8	D	SB Right	0.977	108.3	F	SB Right	0.996	101.8	F
	NBFR BW 8 at Hammerly Blvd	WB Right	0.706	38.7	D	EB Left	0.706	33.2	C	NB Right	0.897	72.9	E	NB Right	0.897	72.5	E
	Hammerly Blvd at Brittmoore Rd	WB Right	0.665	52.4	D	WB Right	0.664	49.3	D	WB Right	0.827	98.6	F	NB Thru	0.897	92.9	F
	Gessner Rd at Emnora Ln	EB Left	0.547	27.8	C	EB Left	0.550	26.1	C	EB Left	0.715	40.8	D	EB Left	0.720	34.6	C
	Kempwood Dr at Wirt Rd	WB Left	0.820	50.7	D	WB Left	0.820	50.6	D	WB Left	1.019	102.5	F	WB Left	1.019	102.5	F
	Hempstead Rd at 34th St	SEB Left	0.548	37.3	D	SWB Left	0.662	39.2	D	SEB Left	0.597	48.6	D	SWB Right	0.790	59.0	E
	W 34th at Antoine	NB Left	0.479	23.2	C	NB Left	0.519	25.3	C	SB Left	0.597	32.4	C	NB Left	0.519	25	C
	SBFR US 290 at 34th St	WB Thru	0.493	29.3	C	WB Thru	0.471	39.4	D	WB Thru	0.532	39.5	D	WB Thru	0.586	54.5	D
	NBFR US 290 at 34th St	NWB Left	0.455	45.3	D	NWB Left	0.403	35.4	D	NWB Left	0.833	65.8	E	NWB Left	0.835	71.2	E

 Proposed altering of channelized right-turn radii
 Proposed conversion to approach geometry and lane assignments
 Proposed conversion to lane assignments
 * Assumed compound yearly growth rate of 1%

APPENDIX G

DETAILED COST ESTIMATES

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 1

Addicks Reservoir at Chatterton to West Hammerly Boulevard

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Curb	LF	102	\$ 6.06	\$ 618.12
Section B - DEMOLITION Subtotal					\$ 20,618.12

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal					\$ 41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	7,068	\$ 85.00	\$ 600,780.00
D-2	6" Portland Cement Stabilized Subgrade	SY	8,415	\$ 10.00	\$ 84,150.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	411	\$ 60.00	\$ 24,660.00
D-4	4.5" Concrete Sidewalk, including Ramp	SF	2,706	\$ 12.00	\$ 32,472.00
D-5	Detectable Warning Surface	SF	28	\$ 14.00	\$ 392.00
D-6	Driveway (Concrete)	SY	52	\$ 64.50	\$ 3,354.00
D-7	Trail Signage (Based on HPB Trail Segment)	LF	5,546	\$ 2.00	\$ 11,091.60
Section D - SITEWORK Subtotal					\$ 756,899.60

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal					\$ -

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal					\$ -

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
H-1	3 Section Bicycle Signal Head (Vertical) B3	EA	2	\$ 1,500.00	\$ 3,000.00
Section H - SIGNALS Subtotal					\$ 3,000.00

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	13	\$ 1,000.00	\$ 13,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	8	\$ 350.00	\$ 2,800.00
I-3	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	1,146	\$ 3.00	\$ 3,438.00
I-4	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	120	\$ 18.00	\$ 2,160.00
I-5	Thermoplastic Pavement Mrkg Symbol, SHARED LANE MARKING	EA	10	\$ 425.00	\$ 4,250.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal					\$ 25,648.00

PROJECT TOTAL:				\$879,165.72	
PROJECT CONSTRUCTION TOTAL:				\$880,000.00	
(Rounded up to nearest \$1000)					

Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 2
 West Hammerly to East of the Guthrie Center

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal				\$	12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Raised Medians, Including Curbs	SY	919	\$ 20.00	\$ 18,380.00
B-3	Remove Sidewalk and Ramps, Including Curb	SY	1,627	\$ 20.00	\$ 32,540.00
B-4	Remove Curb	LF	1,439	\$ 6.06	\$ 8,720.34
B-5	Remove Concrete Pavement, Including Curbs	SY	1,390	\$ 6.50	\$ 9,035.00
B-6	Remove Traffic Buttons / Reflective Pavement Markers	EA	235	\$ 2.00	\$ 470.00
B-7	Blast cleaning pavement markers 4-inch wide	LF	1,228	\$ 2.00	\$ 2,456.00
B-8	Blast cleaning pavement markers 6-inch wide	LF	2,659	\$ 2.00	\$ 5,318.00
B-9	Blast cleaning pavement markers 12-inch wide	LF	1,373	\$ 3.00	\$ 4,119.00
B-10	Blast cleaning pavement markers 24-inch wide	LF	348	\$ 4.00	\$ 1,392.00
B-11	Blast cleaning pavement markers Symbols / Words	EA	25	\$ 10.00	\$ 250.00
Section B - DEMOLITION Subtotal				\$	102,680.34

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 50,000.00	\$ 50,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal				\$	55,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	6,719	\$ 85.00	\$ 571,115.00
D-2	6" Portland Cement Stabilized Subgrade	SY	6,640	\$ 10.00	\$ 66,400.00
D-3	9" Reinforced Concrete Pavement, Jointed	SY	328	\$ 80.00	\$ 26,240.00
D-4	8" Portland Cement Stabilized Subgrade	SY	380	\$ 90.00	\$ 34,200.00
D-5	6" Concrete Curbs	LF	241	\$ 6.00	\$ 1,446.00
D-6	6" Concrete Curbs (Dowelled)	LF	1,390	\$ 8.50	\$ 11,815.00
D-7	Esplanades, Medians, and Directional Islands	SY	1,208	\$ 66.00	\$ 79,728.00
D-8	Colored Concrete Median (Black)	SY	12	\$ 75.00	\$ 900.00
D-9	Detectable Warning Surface	SF	529	\$ 14.00	\$ 7,406.00
Section D - SITEWORK Subtotal				\$	799,250.00

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal				\$	-

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal				\$	-

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal				\$	20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
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Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 2
 West Hammerly to East of the Guthrie Center

H-1	Signalized control at Trail Crossing of West Hammerly near Guthrie Center	LS	1	\$ 175,000.00	\$ 175,000.00
Section H - SIGNALS Subtotal				\$	175,000.00

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	4	\$ 1,000.00	\$ 4,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	4	\$ 350.00	\$ 1,400.00
I-3	Thermoplastic Pavement Mrkg, 4" Wide, White	LF	464	\$ 3.00	\$ 1,392.00
I-4	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	896	\$ 3.00	\$ 2,688.00
I-5	Thermoplastic Pavement Mrkg, 6" Wide, White	LF	6,519	\$ 4.50	\$ 29,335.50
I-6	Thermoplastic Pavement Mrkg, 12" Wide, White	LF	791	\$ 9.00	\$ 7,119.00
I-7	Thermoplastic Pavement Mrkg, 24" Wide, White	LF	394	\$ 18.00	\$ 7,092.00
I-8	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	1,091	\$ 18.00	\$ 19,638.00
I-9	Thermoplastic Yellow Median Curb Paint	LF	234	\$ 3.00	\$ 702.00
I-10	Thermoplastic Pavement Mrkg, Green Paint	SF	1,056	\$ 9.00	\$ 9,504.00
I-11	Thermoplastic Pavement Mrkg Symbol, ARROW / WORD	EA	58	\$ 425.00	\$ 24,650.00
I-12	Thermoplastic Pavement Mrkg Symbol, BICYCLE	EA	4	\$ 425.00	\$ 1,700.00
I-13	Thermoplastic Pavement Mrkg Symbol, BICYCLE ARROW	EA	4	\$ 425.00	\$ 1,700.00
I-14	Thermoplastic Pavement Mrkg Symbol, PEDSTRIAN CROSSING ARROW	EA	28	\$ 425.00	\$ 11,900.00
I-15	Thermoplastic Pavement Mrkg Symbol, SHARED LANE MARKING	EA	12	\$ 425.00	\$ 5,100.00
I-16	TY II C-R Markers / Traffic Buttons	EA	432	\$ 5.00	\$ 2,160.00
I-17	Armadillos	EA	48	\$ 30.00	\$ 1,440.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal				\$	131,520.50

PROJECT TOTAL:	\$1,295,450.84
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)	\$1,296,000.00

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 3

East of Guthrie Center to Gessner Road, including connections to Baseball USA

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Curb	LF	60	\$ 6.06	\$ 363.60
B-3	Remove Fence	LF	90	\$ 7.00	\$ 630.00
Section B - DEMOLITION Subtotal					\$ 20,993.60

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal					\$ 41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	8,170	\$ 85.00	\$ 694,450.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	9,886	\$ 10.00	\$ 98,860.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	545	\$ 60.00	\$ 32,700.00
D-4	Detectable Warning Surface	SF	180	\$ 14.00	\$ 2,520.00
D-5	Trail Signage (Based on HPB Trail Segment)	LF	7,353	\$ 2.00	\$ 14,706.40
Section D - SITEWORK Subtotal					\$ 843,236.40

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
E-1	48 inch RCP	LF	80	\$ 158.20	\$ 12,656.00
Section E - Drainage Subtotal					\$ 12,656.00

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
F-1	Signalized control at Gessner crossing	LS	1	\$ 175,000.00	\$ 175,000.00
Section F - Structural Subtotal					\$ 175,000.00

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
Section H - SIGNALS Subtotal					\$ -

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	12	\$ 1,000.00	\$ 12,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	4	\$ 350.00	\$ 1,400.00
I-3	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	2,042	\$ 3.00	\$ 6,126.00
I-4	Thermoplastic Pavement Mrkg, 6" Wide, White	LF	422	\$ 4.50	\$ 1,899.00
I-5	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	252	\$ 18.00	\$ 4,536.00
I-6	Thermoplastic Pavement Mrkg Symbol, BICYCLE	EA	2	\$ 425.00	\$ 850.00

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 3

East of Guthrie Center to Gessner Road, including connections to Baseball USA

I-7	Thermoplastic Pavement Mrkg Symbol, BICYCLE ARROW	EA	2	\$ 425.00	\$ 850.00
I-8	Thermoplastic Pavement Mrkg Symbol, SHARED LANE MARKING	EA	16	\$ 425.00	\$ 6,800.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal					\$ 34,461.00

PROJECT TOTAL:				\$1,159,347.00	
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)				\$1,160,000.00	

Spring Branch Bike Trails - Schematic Construction Cost Estimate
 Segment 4 - Teague Rd & Palo Pinto Dr Connections to Emnora Trail
 Blalock Trail Conenction

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
Section B - DEMOLITION Subtotal					\$ 20,000.00

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
Section C - TRAFFIC CONTROL Subtotal					\$ -

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	410	\$ 85.00	\$ 34,850.00
D-2	6" Portland Cement Stabilized Subgrade	SY	496	\$ 10.00	\$ 4,960.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	27	\$ 60.00	\$ 1,620.00
D-4	Detectable Warning Surface	SF	60	\$ 14.00	\$ 840.00
Section D - SITEWORK Subtotal					\$ 42,270.00

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
E-1	48 inch RCP	LF	40	\$ 158.20	\$ 6,328.00
Section E - Drainage Subtotal					\$ 6,328.00

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal					\$ -

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
Section H - SIGNALS Subtotal					\$ -

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	94	\$ 3.00	\$ 282.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal					\$ 282.00

PROJECT TOTAL:				\$100,880.00
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)				\$101,000.00

NOTE: This amount will be added to each trail option to sum total construction cost for reach segment in the Implementation Workbook.

Spring Branch Bike Trails - Schematic Construction Cost Estimate
 Segment 4 - Neighborhood Option
 Blalock Trail Connection - Neighborhood Option

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Sidewalk and Ramps, Including Curb	SY	39	\$ 20.00	\$ 780.00
B-3	Remove Concrete Pavement, Including Curbs	SY	112	\$ 6.50	\$ 728.00
B-4	Remove Asphalt Pavement	SF	4,406	\$ 7.00	\$ 30,842.00
B-5	Blast cleaning pavement markers 4-inch wide	LF	1,896	\$ 2.00	\$ 3,792.00
B-6	Blast cleaning pavement markers 6-inch wide	LF	230	\$ 2.00	\$ 460.00
B-7	Blast cleaning pavement markers 12-inch wide	LF	418	\$ 3.00	\$ 1,254.00
B-8	Blast cleaning pavement markers 24-inch wide	LF	166	\$ 4.00	\$ 664.00
B-9	Blast cleaning pavement markers Symbols / Words	EA	6	\$ 10.00	\$ 60.00
Section B - DEMOLITION Subtotal					\$ 58,580.00

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal					\$ 41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	4,008	\$ 85.00	\$ 340,680.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	4,850	\$ 10.00	\$ 48,500.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	27	\$ 60.00	\$ 1,620.00
D-4	6" Concrete Curbs	LF	1,492	\$ 6.00	\$ 8,952.00
D-5	Detectable Warning Surface	SF	166	\$ 14.00	\$ 2,324.00
Section D - SITEWORK Subtotal					\$ 402,076.00

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal					\$ -

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
F-1	Pedestrian Bridge	LS	1	\$ 80,000.00	\$ 80,000.00
Section F - Structural Subtotal					\$ 80,000.00

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
Section H - SIGNALS Subtotal					\$ -

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
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Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 4 - Neighborhood Option

Blalock Trail Connection - Neighborhood Option

Item No.	Description	EA	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	10	\$ 1,000.00	\$ 10,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	10	\$ 350.00	\$ 3,500.00
I-3	Thermoplastic Pavement Mrkg, 4" Wide, White	LF	26	\$ 3.00	\$ 78.00
I-4	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	2,570	\$ 3.00	\$ 7,710.00
I-5	Thermoplastic Pavement Mrkg, 6" Wide, White	LF	436	\$ 4.50	\$ 1,962.00
I-6	Thermoplastic Pavement Mrkg, 12" Wide, White	LF	387	\$ 9.00	\$ 3,483.00
I-7	Thermoplastic Pavement Mrkg, 24" Wide, White	LF	106	\$ 18.00	\$ 1,908.00
I-8	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	504	\$ 18.00	\$ 9,072.00
I-9	Thermoplastic Pavement Mrkg Symbol, ARROW / WORD	EA	10	\$ 425.00	\$ 4,250.00
I-10	TY II C-R Markers / Traffic Buttons	EA	20	\$ 5.00	\$ 100.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal				\$	42,063.00

PROJECT TOTAL:		\$655,719.00
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)		\$656,000.00

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 4 - Median Option

Blalock Trail Connection - Median Option

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal				\$	12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Raised Medians, Including Curbs	SY	207	\$ 20.00	\$ 4,140.00
B-3	Remove Sidewalk and Ramps, Including Curb	SY	36	\$ 20.00	\$ 720.00
B-4	Blast cleaning pavement markers 4-inch wide	LF	35	\$ 2.00	\$ 70.00
B-5	Blast cleaning pavement markers 6-inch wide	LF	130	\$ 2.00	\$ 260.00
B-6	Blast cleaning pavement markers 12-inch wide	LF	136	\$ 3.00	\$ 408.00
B-7	Blast cleaning pavement markers 24-inch wide	LF	36	\$ 4.00	\$ 144.00
B-8	Blast cleaning pavement markers Symbols / Words	EA	2	\$ 10.00	\$ 20.00
Section B - DEMOLITION Subtotal				\$	25,762.00

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal				\$	41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	4,061	\$ 85.00	\$ 345,185.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	4,913	\$ 10.00	\$ 49,130.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	27	\$ 60.00	\$ 1,620.00
D-4	6" Concrete Curbs	LF	96	\$ 6.00	\$ 576.00
D-5	Esplanades, Medians, and Directional Islands	SY	339	\$ 66.00	\$ 22,374.00
D-6	Detectable Warning Surface	SF	183	\$ 14.00	\$ 2,562.00
Section D - SITEWORK Subtotal				\$	421,447.00

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal				\$	-

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal				\$	-

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal				\$	20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
H-1	Signalized crossing of Campbell	LS	1	\$ 175,000.00	\$ 175,000.00
Section H - SIGNALS Subtotal				\$	175,000.00

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
----------	-------------	------	----------	------------	-------

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 4 - Median Option

Blalock Trail Connection - Median Option

Item No.	Description	EA	LF	SY	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	10		\$ 1,000.00	\$ 10,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	10		\$ 350.00	\$ 3,500.00
I-3	Thermoplastic Pavement Mrkg. 4" Wide, Yellow	LF	954		\$ 3.00	\$ 2,862.00
I-4	Thermoplastic Pavement Mrkg. 6" Wide, White	LF	205		\$ 4.50	\$ 922.50
I-5	Thermoplastic Pavement Mrkg. 12" Wide, White	LF	50		\$ 9.00	\$ 450.00
I-6	Thermoplastic Pavement Mrkg. 24" Wide, White	LF	36		\$ 18.00	\$ 648.00
I-7	Thermoplastic Pavement Mrkg. 24" Wide, SHARED-USE	LF	240		\$ 18.00	\$ 4,320.00
I-8	TY II C-R Markers / Traffic Buttons	EA	9		\$ 5.00	\$ 45.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal						\$ 22,747.50

PROJECT TOTAL: \$717,956.50

PROJECT CONSTRUCTION TOTAL: \$718,000.00
(Rounded up to nearest \$1000)

Spring Branch Bike Trails - Schematic Construction Cost Estimate

Segment 4 - School Option

Blalock Trail Connection - School Option

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Sidewalk and Ramps, Including Curb	SY	23	\$ 20.00	\$ 460.00
Section B - DEMOLITION Subtotal					\$ 20,460.00

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal					\$ 41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	4,883	\$ 85.00	\$ 415,055.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	5,908	\$ 10.00	\$ 59,080.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	112	\$ 60.00	\$ 6,720.00
D-4	6" Concrete Curbs	LF	96	\$ 6.00	\$ 576.00
D-5	Detectable Warning Surface	SF	91	\$ 14.00	\$ 1,274.00
Section D - SITEWORK Subtotal					\$ 482,705.00

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal					\$ -

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal					\$ -

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
H-1	Signalized crossing at Campbell	LS	1	\$ 175,000.00	\$ 175,000.00
Section H - SIGNALS Subtotal					\$ 175,000.00

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	10	\$ 1,000.00	\$ 10,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	10	\$ 350.00	\$ 3,500.00
I-3	Thermoplastic Pavement Mrkg. 4" Wide, Yellow	LF	1,067	\$ 3.00	\$ 3,201.00
I-4	Thermoplastic Pavement Mrkg. 24" Wide, SHARED-USE	LF	168	\$ 18.00	\$ 3,024.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal					\$ 19,725.00

PROJECT TOTAL: \$770,890.00

PROJECT CONSTRUCTION TOTAL: \$771,000.00
(Rounded up to nearest \$1000)

Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 6
Wirt Road to Mangum Road

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal				\$	12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Raised Medians, Including Curbs	SY	186	\$ 20.00	\$ 3,720.00
B-3	Remove Sidewalk and Ramps, Including Curb	SY	1,965	\$ 20.00	\$ 39,300.00
B-4	Remove Curb	LF	2,651	\$ 6.06	\$ 16,065.06
B-5	Remove Concrete Pavement, Including Curbs	SY	1,228	\$ 6.50	\$ 7,982.00
B-6	Remove Traffic Buttons / Reflective Pavement Markers	EA	14,104	\$ 2.00	\$ 28,208.00
B-7	Blast cleaning pavement markers 4-inch wide	LF	4,869	\$ 2.00	\$ 9,738.00
B-8	Blast cleaning pavement markers 6-inch wide	LF	4,488	\$ 2.00	\$ 8,976.00
B-9	Blast cleaning pavement markers 12-inch wide	LF	2,302	\$ 3.00	\$ 6,906.00
B-10	Blast cleaning pavement markers 24-inch wide	LF	899	\$ 4.00	\$ 3,596.00
B-11	Blast cleaning pavement markers Symbols / Words	EA	44	\$ 10.00	\$ 440.00
Section B - DEMOLITION Subtotal				\$	144,931.06

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal				\$	41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	6,254	\$ 85.00	\$ 531,590.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	7,567	\$ 10.00	\$ 75,670.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	94	\$ 60.00	\$ 5,640.00
D-4	6" Concrete Curbs (Dowelled)	LF	2,071	\$ 8.50	\$ 17,603.50
D-5	Esplanades, Medians, and Directional Islands	SY	633	\$ 66.00	\$ 41,778.00
D-6	Detectable Warning Surface	SF	621	\$ 14.00	\$ 8,694.00
D-7	Driveway (Concrete)	SY	632	\$ 64.50	\$ 40,764.00
D-8	Trail Signage (Based on HPB Trail Segment)	LF	1,280	\$ 2.00	\$ 2,560.00
Section D - SITEWORK Subtotal				\$	724,299.50

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal				\$	-

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal				\$	-

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal				\$	20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
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Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 6
Wirt Road to Mangum Road

H-1	3 Section Bicycle Signal Head (Vertical) B3	EA	4	\$ 1,500.00	\$ 6,000.00
Section H - SIGNALS Subtotal				\$	6,000.00

Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Thermoplastic Pavement Mrkg, 4" Wide, White	LF	3,027	\$ 3.00	\$ 9,081.00
I-2	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	1,683	\$ 3.00	\$ 5,049.00
I-3	Thermoplastic Pavement Mrkg, 6" Wide, White	LF	18,527	\$ 4.50	\$ 83,371.50
I-4	Thermoplastic Pavement Mrkg, 12" Wide, White	LF	1,841	\$ 9.00	\$ 16,569.00
I-5	Thermoplastic Pavement Mrkg, 24" Wide, White	LF	1,110	\$ 18.00	\$ 19,980.00
I-6	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	2,052	\$ 18.00	\$ 36,936.00
I-7	Thermoplastic Yellow Median Curb Paint	LF	40	\$ 3.00	\$ 120.00
I-8	Thermoplastic Pavement Mrkg, Green Paint	SF	3,432	\$ 9.00	\$ 30,888.00
I-9	Thermoplastic Pavement Mrkg Symbol, ARROW / WORD	EA	61	\$ 425.00	\$ 25,925.00
I-10	Thermoplastic Pavement Mrkg Symbol, BICYCLE	EA	28	\$ 425.00	\$ 11,900.00
I-11	Thermoplastic Pavement Mrkg Symbol, BICYCLE ARROW	EA	28	\$ 425.00	\$ 11,900.00
I-12	Thermoplastic Pavement Mrkg Symbol, PEDSTRIAN	EA	2	\$ 425.00	\$ 850.00
I-13	Thermoplastic Pavement Mrkg Symbol, RR XING	EA	5	\$ 500.00	\$ 2,500.00
I-14	TY II C-R Markers / Traffic Buttons	EA	336	\$ 5.00	\$ 1,680.00
I-15	Armadillos	EA	459	\$ 30.00	\$ 13,770.00
I-16	Wheelstops	EA	13	\$ 160.00	\$ 2,080.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal				\$	272,599.50

PROJECT TOTAL: \$1,220,830.06

PROJECT CONSTRUCTION TOTAL: \$1,221,000.00
(Rounded up to nearest \$1000)

Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 7
Mangum Road to White Oak Bayou

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal				\$	12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
B-2	Remove Raised Medians, Including Curbs	SY	130	\$ 20.00	\$ 2,600.00
B-3	Remove Sidewalk and Ramps, Including Curb	SY	585	\$ 20.00	\$ 11,700.00
B-4	Remove Curb	LF	550	\$ 6.06	\$ 3,333.00
B-5	Remove Concrete Pavement, Including Curbs	SY	225	\$ 6.50	\$ 1,462.50
B-6	Blast cleaning pavement markers 4-inch wide	LF	230	\$ 2.00	\$ 460.00
B-7	Blast cleaning pavement markers 6-inch wide	LF	640	\$ 2.00	\$ 1,280.00
B-8	Blast cleaning pavement markers 12-inch wide	LF	550	\$ 3.00	\$ 1,650.00
B-9	Blast cleaning pavement markers 24-inch wide	LF	160	\$ 4.00	\$ 640.00
Section B - DEMOLITION Subtotal				\$	43,125.50

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
C-1	Traffic Control	LS	1	\$ 36,000.00	\$ 36,000.00
C-2	City of Houston/TxDOT Lane Closure Permits	LS	1	\$ 5,000.00	\$ 5,000.00
Section C - TRAFFIC CONTROL Subtotal				\$	41,000.00

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	5,758	\$ 85.00	\$ 489,430.00
D-2	Portland Cement Stabilized Subgrade 6-in	SY	6,968	\$ 10.00	\$ 69,680.00
D-3	Coarse Sand Backfill, including Filter Fabric	CY	348	\$ 60.00	\$ 20,880.00
D-4	Esplanades, Medians, and Directional Islands	SY	130	\$ 66.00	\$ 8,580.00
D-5	Detectable Warning Surface	SF	180	\$ 14.00	\$ 2,520.00
D-6	4.5" Concrete Sidewalk, including ramps	SF	480	\$ 12.00	\$ 5,760.00
D-7	6" Concrete Curbs (Dowelled)	LF	500	\$ 8.50	\$ 4,250.00
D-8	Trail Signage (Based on HPB Trail Segment)	LF	5,183	\$ 2.00	\$ 10,365.20
Section D - SITEWORK Subtotal				\$	611,465.20

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal				\$	-

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
Section F - Structural Subtotal				\$	-

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal				\$	20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
H-1	Signalized control at TC Jester	LS	1	\$ 175,000.00	\$ 175,000.00
H-2	Signalized control at Mangum	LS	1	\$ 175,000.00	\$ 175,000.00

Spring Branch Bike Trails - Schematic Construction Cost Estimate
Segment 7
Mangum Road to White Oak Bayou

Section H - SIGNALS Subtotal	\$ 350,000.00
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Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Ground Mounted Sign and Post Assembly, furnish & install	EA	8	\$ 1,000.00	\$ 8,000.00
I-2	Small Traffic Sign, Furnish & Install	EA	8	\$ 350.00	\$ 2,800.00
I-3	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	1,504	\$ 3.00	\$ 4,512.00
I-4	Thermoplastic Pavement Mrkg, 6" Wide, White	LF	640	\$ 4.50	\$ 2,880.00
I-5	Thermoplastic Pavement Mrkg, 12" Wide, White	LF	550	\$ 9.00	\$ 4,950.00
I-6	Thermoplastic Pavement Mrkg, 24" Wide, SHARED-USE	LF	352	\$ 18.00	\$ 6,336.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal				\$	29,478.00

PROJECT TOTAL:	\$1,107,068.70
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)	\$1,108,000.00

Spring Branch Bike Trails - Schematic Cost Estimate
Segment 7 - Pedestrian Bridge over White Oak Bayou
Mangum Road to White Oak Bayou

Section A - GENERAL ITEMS

Item No.	Description	Unit	Quantity	Unit Price	Total
A-1	Performance and Payment Bonds	LS	1	\$ 10,000.00	\$ 10,000.00
A-2	Project Identification Sign	EA	2	\$ 1,000.00	\$ 2,000.00
Section A - GENERAL ITEMS Subtotal					\$ 12,000.00

Section B - DEMOLITION

Item No.	Description	Unit	Quantity	Unit Price	Total
B-1	Clearing & Grubbing	LS	1	\$ 20,000.00	\$ 20,000.00
Section B - DEMOLITION Subtotal					\$ 20,000.00

Section C - TRAFFIC CONTROL

Item No.	Description	Unit	Quantity	Unit Price	Total
Section C - TRAFFIC CONTROL Subtotal					\$ -

Section D - SITEWORK

Item No.	Description	Unit	Quantity	Unit Price	Total
D-1	6" Reinforced Concrete Pavement, Jointed	SY	335	\$ 85.00	\$ 28,456.11
D-2	Portland Cement Stabilized Subgrade 6-in	SY	405	\$ 10.00	\$ 4,050.81
D-3	Coarse Sand Backfill, including Filter Fabric	CY	22	\$ 60.00	\$ 1,339.11
D-4	Trail Signage (Based on HPB Trail Segment)	LF	301	\$ 2.00	\$ 602.60
Section D - SITEWORK Subtotal					\$ 34,448.63

Section E - Drainage

Item No.	Description	Unit	Quantity	Unit Price	Total
Section E - Drainage Subtotal					\$ -

Section F - Structural

Item No.	Description	Unit	Quantity	Unit Price	Total
F-1	Pedestrian Bridge	LS	1	\$ 2,067,900.00	\$ 2,067,900.00
Section F - Structural Subtotal					\$ 2,067,900.00

Section G - SWPPP

Item No.	Description	Unit	Quantity	Unit Price	Total
G-1	SWPPP (Including IPB, Filter Fabric Fence) & NPDES General Permit	LS	1	\$ 20,000.00	\$ 20,000.00
Section G - SWPPP Subtotal					\$ 20,000.00

Section H - SIGNALS

Item No.	Description	Unit	Quantity	Unit Price	Total
Section H - SIGNALS Subtotal					\$ -

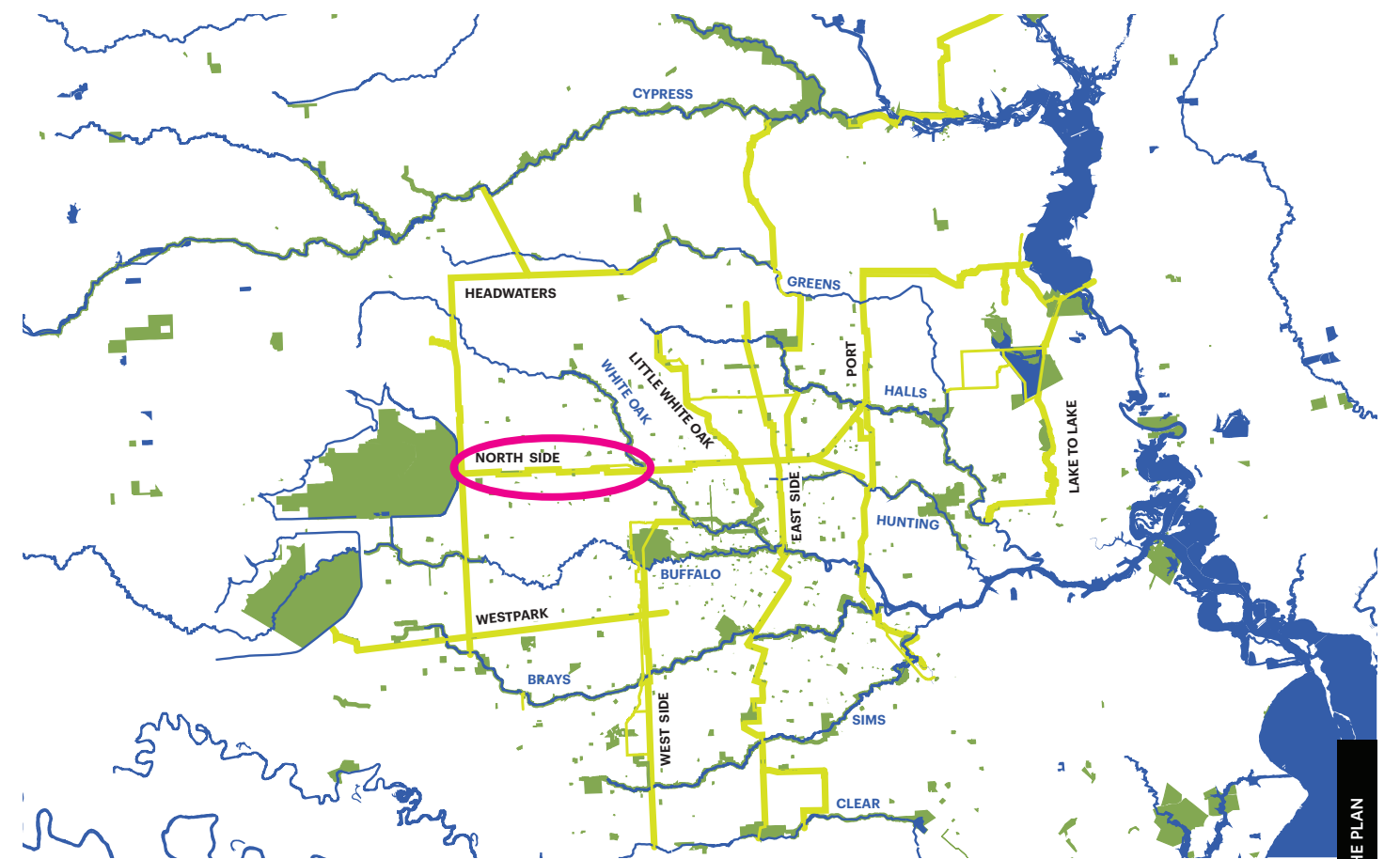
Section I - PAVEMENT MARKINGS AND SIGNAGE

Item No.	Description	Unit	Quantity	Unit Price	Total
I-1	Thermoplastic Pavement Mrkg, 4" Wide, Yellow	LF	95	\$ 3.00	\$ 285.00
Section I - PAVEMENT MARKINGS AND SIGNAGE Subtotal					\$ 285.00

PROJECT CONSTRUCTION TOTAL:					\$2,154,633.63
PROJECT CONSTRUCTION TOTAL: (Rounded up to nearest \$1000)					\$2,155,000.00

APPENDIX H HOUSTON PARKS BOARD - BEYOND THE BAYOUS MAP

AND SPRING BRANCH TRAIL BLALOCK TO WIRT SIGNAGE



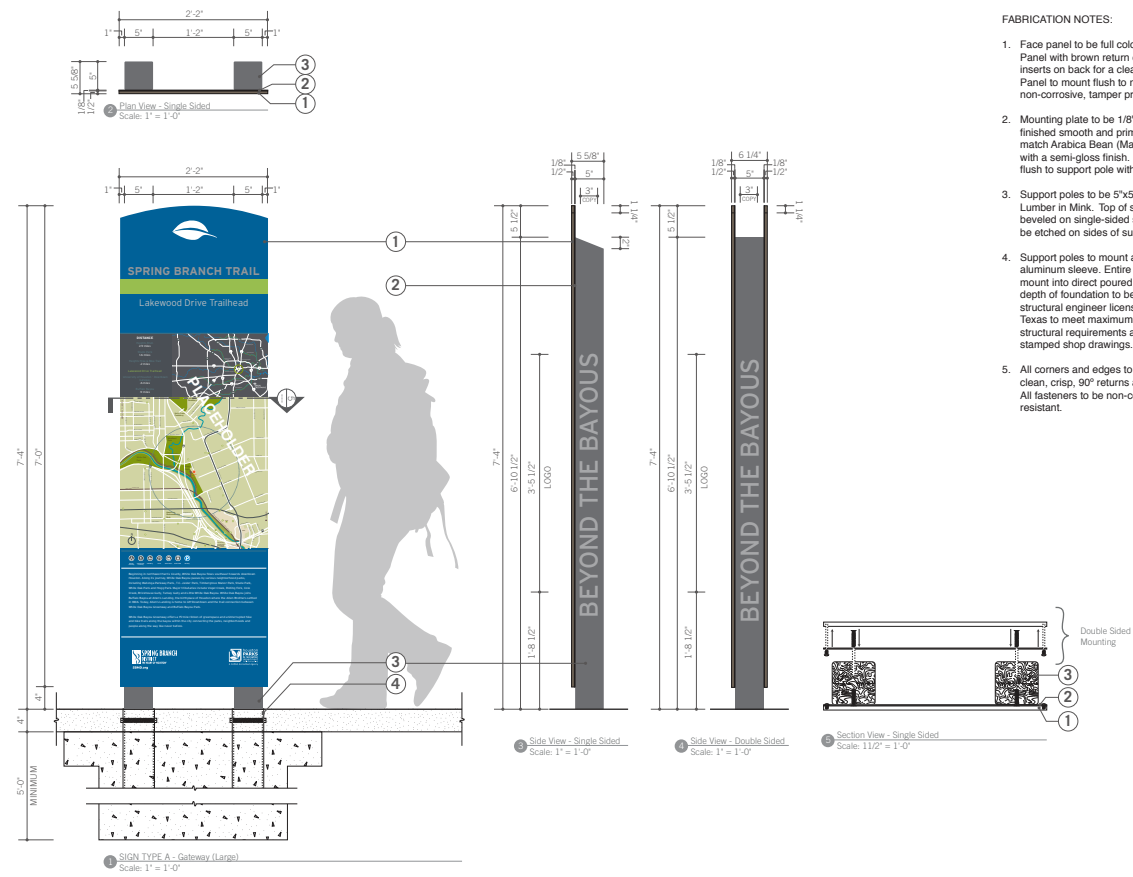
WHERE ARE THE BEST PLACES TO PUT NEW GREENWAYS?

As greenway building efforts move beyond the bayous, the most straightforward way to site future greenways is to identify missing links where neighborhoods and activity centers are not connected to the current greenways. The yellow lines on this map represent “desire lines” of travel through Houston. They don’t currently exist, but if they were to be built, the utility of these regional connections, in these approximate locations, would be incontestable.

In locating these desire lines, connectivity and equity in distribution have been the guiding priorities. Looking at the “Port Connector” in isolation from the other yellow lines, one can see that the proposed alignment intersects several Bayou Greenways, providing a transect that crosses Sims, Brays, Buffalo, Hunting, Halls and Greens Bayous all the way up to Lake Houston. Many of the neighborhoods it crosses through are distressed, with high incidence of low income and poor health within the population. So, this link has the potential to address issues of equity along with issues of connectivity.

Map 42—Linking Bayou Greenways and Expanding Access

- LEGEND**
- PROPOSED REGIONAL CONNECTORS
 - PARKS AND GREENWAYS
 - WATER
 - HPB NORTH SIDE:
Proposed SBMD
CenterPoint Trail



FABRICATION NOTES:

1. Face panel to be full color 1/2" thick HPL Izone Panel with brown return edges and threaded inserts on back for a clean face appearance. Panel to mount flush to mounting plate using non-corrosive, tamper proof fasteners.
2. Mounting plate to be 1/8" thick aluminum finished smooth and primed and painted to match Arabica Bean (Matthews Paint MP02633) with a semi-gloss finish. Backer panel to mount flush to support pole with countersunk screws.
3. Support poles to be 5"x5" American Plastic Lumber in Mink. Top of support pole to be beveled on single-sided sign locations. Logo to be etched on sides of support pole.
4. Support poles to mount and fasten into aluminum sleeve. Entire sign assembly to mount into direct poured concrete. Size and depth of foundation to be determined by structural engineer licensed with the State of Texas to meet maximum local wind load and structural requirements and detailed on stamped shop drawings.
5. All corners and edges to be slightly eased on clean, crisp, 90° returns and finished smooth. All fasteners to be non-corrosive and tamper resistant.



1601 West Webster, #3
Houston, Texas 77019
713.523.6644

The provided drawings serve as a device to communicate design intent only. Fabrication and installation of the products represented herein will be derived from shop drawings and fabrication drawings produced by the contracted fabricator and designer.

NOTE: Items are at scale noted when this sheet is printed as an 11" x 17" sheet.

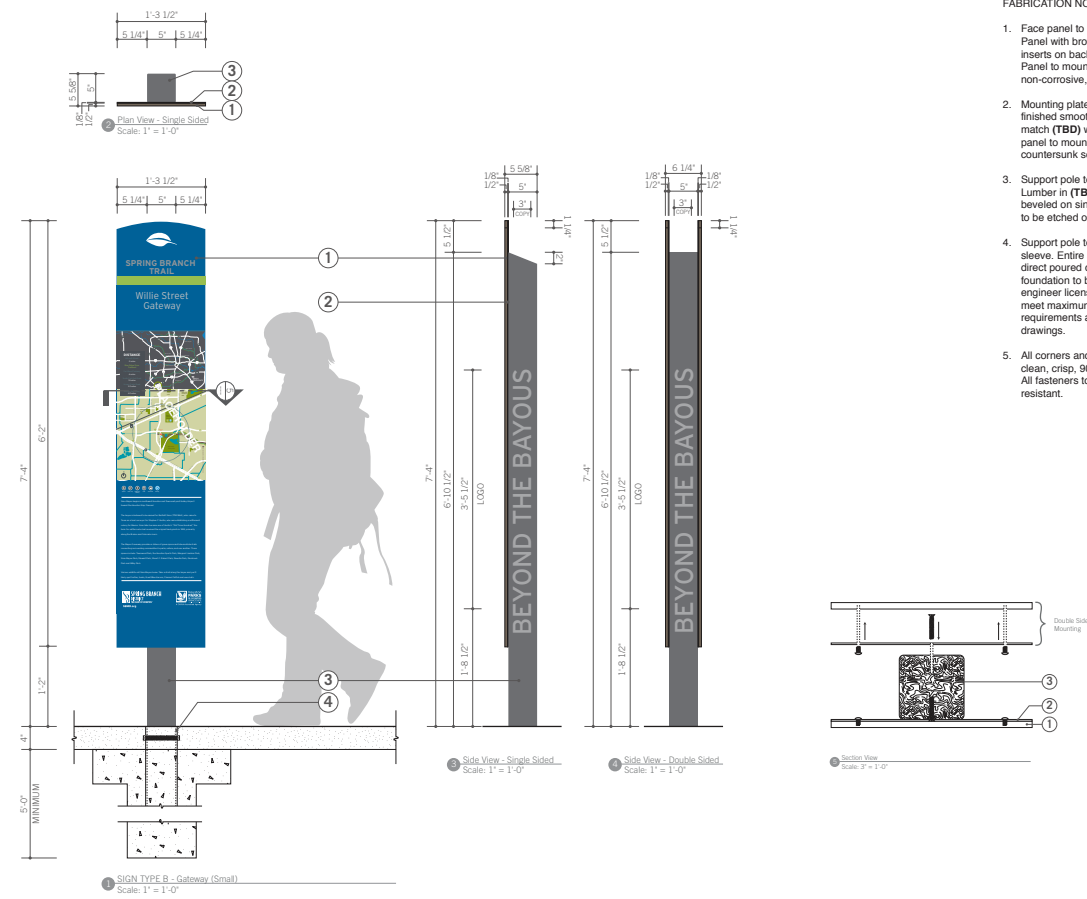
ISSUE	DATE
Client Review 1	08.09.19
Client Review 2	09.19.19

**Houston Parks Board
Beyond the Bayous
Spring Branch Trail
Blalock Rd. to Wirt Rd.**

DRAWN: MK
CHECKED: MDG
SCALE: As shown
MD PROJECT NO: 491-003

Type A

SHEET:
G.33



FABRICATION NOTES:

1. Face panel to be full color 1/2" thick HPL Izone Panel with brown return edges and threaded inserts on back for a clean face appearance. Panel to mount flush to mounting plate using non-corrosive, tamper proof fasteners.
2. Mounting plate to be 1/8" thick aluminum finished smooth and primed and painted to match (TBD) with a semi-gloss finish. Backer panel to mount flush to support pole with countersunk screws.
3. Support pole to be 5"x5" American Plastic Lumber in (TBD). Top of support pole to be beveled on single-sided sign locations. Logo to be etched on sides of support pole.
4. Support pole to mount and fasten into aluminum sleeve. Entire sign assembly to mount into direct poured concrete. Size and depth of foundation to be determined by structural engineer licensed with the State of Texas to meet maximum local wind load and structural requirements and detailed on stamped shop drawings.
5. All corners and edges to be slightly eased on clean, crisp, 90° returns and finished smooth. All fasteners to be non-corrosive and tamper resistant.



1601 West Webster, #3
Houston, Texas 77019
713.523.6644

The provided drawings serve as a device to communicate design intent only. Fabrication and installation of the products represented herein will be derived from shop drawings and fabrication drawings produced by the contracted fabricator and designer.

NOTE: Items are at scale noted when this sheet is printed as an 11" x 17" sheet.

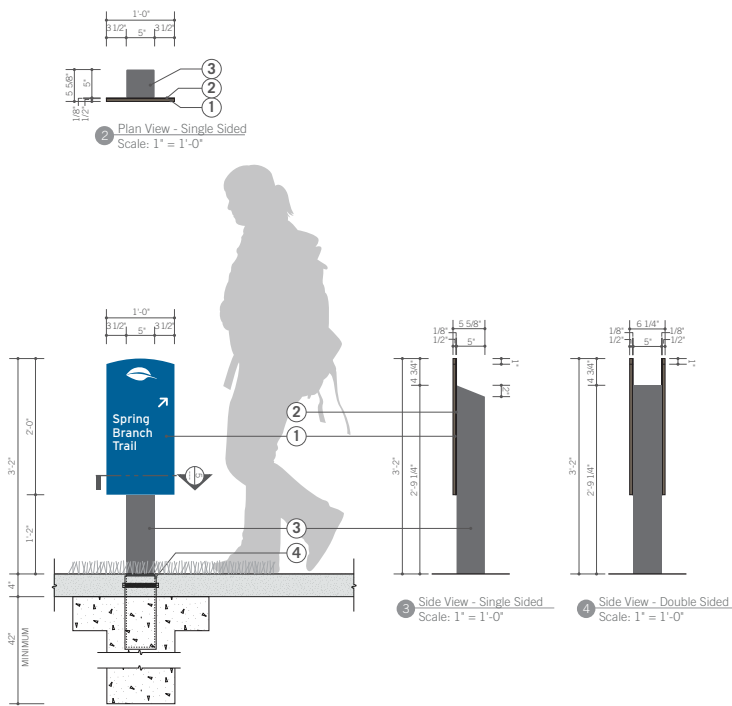
ISSUE	DATE
Client Review 1	08.09.19
Client Review 2	09.19.19

**Houston Parks Board
Beyond the Bayous
Spring Branch Trail
Blalock Rd. to Wirt Rd.**

DRAWN: MK
CHECKED: MDG
SCALE: As shown
MD PROJECT NO: 491-003

Type B

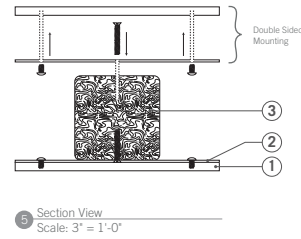
SHEET:
G.34



1 SIGN TYPE C - Wayfinding, Directional, Regulatory (Short)
Scale: 1" = 1'-0"

FABRICATION NOTES:

1. Face panel to be full color 1/2" thick HPL Izone Panel with brown return edges and threaded inserts on back for a clean face appearance. Panel to mount flush to mounting plate using non-corrosive, tamper proof fasteners.
2. Mounting plate to be 1/8" thick aluminum finished smooth and primed and painted to match (TBD) with a semi-gloss finish. Backer panel to mount flush to support pole with countersunk screws.
3. Support pole to be 5"x5" American Plastic Lumber in (TBD). Top of support pole to be beveled on single-sided sign locations.
4. Support pole to mount and fasten into aluminum sleeve. Entire sign assembly to mount into direct poured concrete. Size and depth of foundation to be determined by structural engineer licensed with the State of Texas to meet maximum local wind load and structural requirements and detailed on stamped shop drawings.
5. All corners and edges to be slightly eased on clean, crisp, 90° returns and finished smooth. All fasteners to be non-corrosive and tamper resistant.



5 Section View
Scale: 3" = 1'-0"



1601 West Webster, #23
Houston, Texas 77019
713.523.6644

The provided drawings serve as a device to communicate design intent only. Fabrication and installation of the products represented herein will be derived from shop drawings and fabrication drawings produced by the contracted fabricator and designer.

NOTE: Items are at scale noted when this sheet is printed as an 11" x 17" sheet.

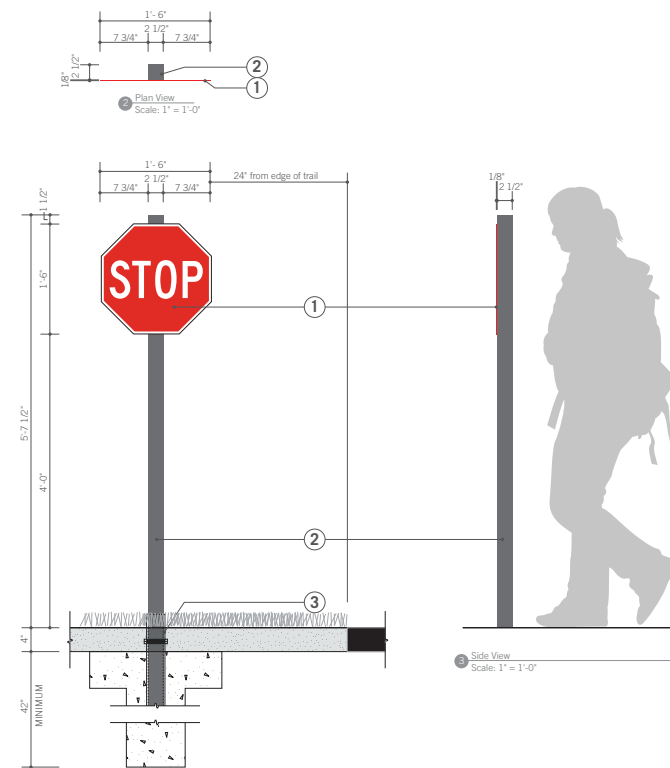
ISSUE	DATE
Client Review 1	08.09.19
Client Review 2	09.19.19

Houston Parks Board
Beyond the Bayous
Spring Branch Trail
Blalock Rd. to Wirt Rd.

DRAWN: MK
CHECKED: MDG
SCALE: As shown
MD PROJECT NO: 491-003

Type C

SHEET:
G.35



1 SIGN TYPE G - Safety Regulatory
Scale: 1" = 1'-0"

FABRICATION NOTES:

1. Face panel to be 1/8" thick aluminum finished smooth and primed and painted on all exposed edges to match (TBD) with a semi-gloss finish. Front of face panel to be computer-cut, reflective vinyl. Panel to mount flush to support pole with non-corrosive tamper proof hardware through sign face, painted to match background color.
2. Support pole to be 2 1/2" x 2 1/2", .083 wall, square steel tubing, capped, finished smooth and primed and painted to match (TBD) on all exposed edges with a semi-gloss finish. Support pole to be drilled and tapped to accept non-corrosive, counter sunk fasteners.
3. Support pole to mount and fasten into galvanized anchor sleeve. Entire sign assembly to mount into direct poured concrete. Size and depth of foundation to be determined by structural engineer licensed with the State of Texas to meet maximum local wind load and structural requirements and detailed on stamped shop drawings.
4. All corners and edges to be slightly eased on clean, crisp, 90° returns and finished smooth. All fasteners to be non-corrosive and tamper resistant.



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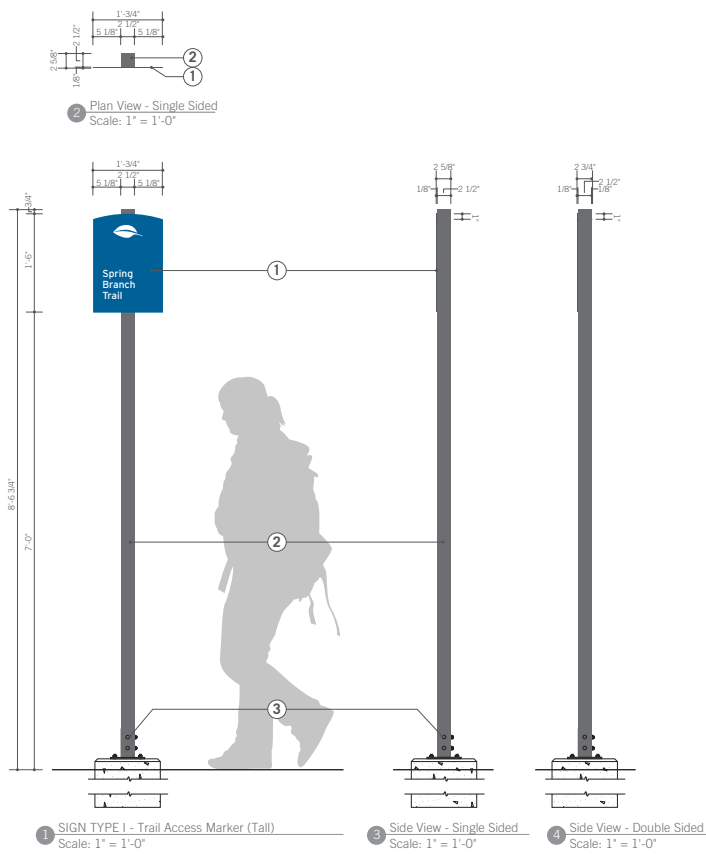
ISSUE	DATE
Client Review 1	08.09.19
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Houston Parks Board
Beyond the Bayous
Spring Branch Trail
Blalock Rd. to Wirt Rd.

DRAWN: MK
CHECKED: MDG
SCALE: As shown
MD PROJECT NO: 491-003

Type G

SHEET:
G.36



FABRICATION NOTES:

1. Face panel to be .080 Aluminum, 1/8" Diebond, HDO, or similar pre-sheated in opaque white vinyl. Graphic to be full color direct print with UV clear coat or clear UV laminate film. Panel to mount flush to support pole with non-corrosive tamper proof hardware through sign face, painted to match background color.
2. Support pole to be 2 1/2" x 2 1/2", .083 wall, square steel tubing, capped, finished smooth and primed and painted to match (TBD) on all exposed edges with a semi-gloss finish. Support pole to be drilled and tapped to accept non-corrosive, counter sunk fasteners.
3. Support pole to be mechanically attached to SNAP n SAFE surface mount breakaway sign couple, Part #S2505, or approved equivalent. To be installed per the manufacturer's recommendations. Mounts to concrete base with 3/8" expansion studs. Breakaway supports and fasteners to be primed and painted to match (TBD) on all exposed edges with a semi-gloss finish.

 Manufacturer:
 Designations, Inc.
 (888) 868-6588
<http://www.designations.com/snapsafe.htm>
sales@designations.com

 Approved Equivalent:
 Dent Breakaway Industries
 (505) 486-0476
<http://www.dentbreakaway.com>
info@dentbreakaway.com
4. All corners and edges to be slightly eased on clean, crisp, 90° returns and finished smooth. All fasteners to be non-corrosive and tamper resistant.



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713.523.6644

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Houston Parks Board
Beyond the Bayous
Spring Branch Trail
Blalock Rd. to Wirt Rd.

DRAWN: MK
CHECKED: MDG
SCALE: As shown
MD PROJECT NO: 491-003

Type I

SHEET:
G.37

APPENDIX I

PHOTO SOURCES

Photo Sources

Figure ES.7: Dave Roth, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/>, October 2019

Figure ES.8: Dianne Yee, <https://nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/one-way-protected-cycle-tracks/>, October 2019

Figure 4.2: Carl Sundstrom, pedbikeimages.org, November 2019

Figure 4.5: Brandon Whyte, pedbikeimages.org, December 2019

Figure 4.6: Houston Parks Board, <https://sbmd.org/wp-content/uploads/2019/04/SBTrail-Phase1-30-for-website.pdf>, November 2019

Figure 4.8: City of Tallahassee, FL, <https://www.youtube.com/watch?v=mXqpXSBQJ7M>, November 2019

Figure 4.9: Mike Cynecki, pedbikeimages.org, November 2019

Figure 4.10: Michael Frederick, pedbikeimages.org, November 2019

Figure 4.11: Dan Burden, pedbikeimages.org, November 2019

Figure 4.12: Brandon Whyte, pedbikeimages.org, December 2019

Figure 4.13: NACTO, *Mid-Block, In-Lane Stop*, <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/>, November 2019

Figure 4.14: Russ Roca, pedbikeimages.org, November 2019

Figure 4.15: Russ Roca, pedbikeimages.org, November 2019

Figure 4.16: Adam Fukushima, pedbikeimages.org, November 2019

Figure 4.17: Russ Roca, pedbikeimages.org, November 2019

Figure 4.18: NACTO, *Median Refuge Island – Portland, OR*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/major-street-crossing/>, November 2019

Figure 4.19: NACTO, *Diverter with Signal – Tucson, AZ*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/major-street-crossing/>, November 2019

Figure 4.20: Russ Roca, pedbikeimages.org, November 2019

Figure 4.21: Dan Burden, pedbikeimages.org, November 2019

Figure 4.22: Russ Roca, pedbikeimages.org, November 2019

Figure 4.23: NACTO, *Speed Lumps – Baltimore, MD*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/speed-management/>, November 2019

Figure 4.24: NACTO, *Speed Hump – Portland, OR*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/speed-management/>, November 2019

Figure 4.25: Russ Roca, pedbikeimages.org, November 2019

Figure 4.26: NACTO, *Diagonal Diverter – Baltimore, MD*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-boulevards/volume-management/>, November 2019

Figure 4.27: Toole Design Group, pedbikeimages.org, November 2019

Figure 4.29: Dianne Yee, <https://nacto.org/publication/urban-bikeway-design-guide/cycle-tracks/one-way-protected-cycle-tracks/>, October 2019

Figure 4.32: <https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/two-stage-turn-queue-boxes/>, October 2019

Figure 4.33: NACTO, *Bicycle Detector Pavement Marking – San Luis Obispo, CA*, <https://nacto.org/publication/urban-bikeway-design-guide/bicycle-signals/signal-detection-and-actuation/>, November 2019

Figure 4.34: Nearmap aerial imagery, <https://www.nearmap.com/us/en>, November 2019

Figure 4.35: NACTO, <https://nacto.org/publication/urban-bikeway-design-guide/dont-give-up-at-the-intersection/>, November 2019

Figure 4.36: Dan Burden, pedbikeimages.org, December 2019

Figure 4.37: SDOT, pedbikeimages.org, November 2019

Figure 4.40: Gail Delaughter, Houston Public Media, <https://www.houstonpublicmedia.org/articles/news/2015/10/16/124698/houstons-comprehensive-bike-plan-could-be-finalized-this-spring/>, November 2019

Figure 4.42: NACTO, *Near-Side, In-Lane Stop*, <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/>, November 2019

Figure 4.43: NACTO, *Far-Side, In-Lane Stop*, <https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-design-factors/stop-placement-intersection-configuration/>, November 2019

Figure 4.47: Houston BCycle, <https://www.houstonbcycle.com/>, November 2019

Figure 4.48: Tom Fox, Dallas Morning News, <https://www.dallasnews.com/food/2018/01/24/a-guide-to-dining-and-drinking-at-the-shops-at-clearfork-in-fort-worth/>, November 2019