



PLANNING COMMISSION REGULAR MEETING
Zoom Webinar and Town Council Chamber
3 S. Timber Ridge Parkway, Severance, CO 80550

AGENDA
PLANNING COMMISSION REGULAR MEETING
Wednesday, March 15, 2023, at 6:00 PM

A. CALL TO ORDER

1. Roll Call
2. Pledge of Allegiance
3. Approval of Agenda
4. Public Comment

The purpose of the Public Comment is for members of the public to speak to the Planning Commission on any subject not scheduled on the agenda. To accomplish scheduled agenda items, comments should be limited to three minute for those attending in person or an appropriate time as deemed by the Chair. The Planning Commission shall make no decisions or take action on comments, but may choose to schedule the matter for a decision later. Those addressing the Planning Commission, please state your name and address. and sign-in.

5. Approval of 11.16.22 Minutes
6. Approval of 2.15.23 Minutes

B. REGULAR MEETING

1. Appointment of Chair and Vice-Chair
 - Legislative
 - Staff Presentation: Nicholas Wharton, Town Manager
2. Resolution PC-2023-02R: Ziggi's Site Plan
 - Legislative
 - Staff Presentation: Abdul Barzak, Town Planner

C. COMMUNICATIONS

Commission approval may be sought for administrative actions in association with staff reports.

1. Town Attorney
2. Town Staff
3. Town Management

4. Commission Members
5. Chair

D. ADJOURN

Planning Commission MEETING

Wednesday, March 15, 2023, 6:00 PM (MDT)

Registration URL

https://us02web.zoom.us/webinar/register/WN_OCx-DpESRiaIW915_tEgg

The Town of Severance does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in the provision of services. For disabled persons needing reasonable accommodation to attend or participate in a town service, program, public meeting, or activity, call 970-686-1218 at least 72 hours in advance. Disabled access is available from the front entrance of the Town Hall.



PLANNING COMMISSION REGULAR MEETING
Zoom Webinar and Town Council Chamber
3 S. Timber Ridge Parkway, Severance, CO 80550

MINUTES
REGULAR MEETING 2022-09
Wednesday, November 16, 2022, at 6:00 PM

Present:

Chair:

Julie Stout

Vice-Chair:

Derek Grimes

Commissioners:

Zach Goodell

David Rau

Joe Pirrone

Terence Hennessy (alt)

Absent: Zach Goodell and Terence
Hennessy

Audience:

Staff:

Nicholas Wharton, Town Manager

Abdul Barzak, Town Planner

Leah Vanarsdall, Town Clerk

A. CALL TO ORDER

1. Roll Call

2. Pledge of Allegiance

3. Approval of Agenda

MOTION WAS MADE BY Planning Commission Pirrone , seconded by Planning
Commission Grimes to Approve the Agenda. All Commission Members present voting
Yes,

MOTION PASSED

4 Public Comment

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The purpose of the Public Comment is for members of the public to speak to the Planning Commission on any subject not scheduled on the agenda. To accomplish scheduled agenda items, comments should be limited to three minute for those attending in person or an appropriate time as deemed by the Chair. The Planning Commission shall make no decisions or take action on comments, but may choose to schedule the matter for a decision later. Those addressing the Planning Commission, please state your name and address.

NONE

5. Approval of 10.19.22 Minutes

MOTION WAS MADE BY Planning Commission Pirrone , seconded by Planning Commission Rau to Approve the 10.19.22 Minutes. All Commission Members present voting Yes,

MOTION PASSED

B REGULAR MEETING

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1. Density and Subdivision Requirements to set aside for Commercial/Community Spaces Land Use Code

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner

MOTION WAS MADE BY Commissioner Rau, seconded by Commissioner Grimes for Staff to prepare a Memo as a draft of all recommendations from Planning Commission and to be reviewed, seconded by Commissioner Grimes, All Commission Members present voting Yes,

MOTION PASSED

2. PUBLIC HEARING

PC-2022-02R A Resolution for Moody Comprehensive Plan Amendment

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner

No Public Comment

MOTION WAS MADE BY Commissioner Rau, seconded by Commissioner Chair Stout to Approve Resolution **PC-2022-02R** A Resolution for Moody Comprehensive Plan Amendment and to forward to Town Council for approval. All Commission Members present voting Yes,

MOTION PASSED

Open: 6:16 pm Closed: 6:38 pm

3. PUBLIC HEARING

PC-2022-03R A Resolution for the Moody Annexation Zoning

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner

No Public Comment

MOTION WAS MADE BY Commissioner Grimes, seconded by Commissioner Rau to Approve **PC-2022-03R** A Resolution for the Moody Annexation Zoning and forward the recommendation for approval to Town Council. All Commission Members present voting Yes,

MOTION PASSED

Open: 6:41 pm **Closed:** 6:51 pm

4. PC-2022-04R A Resolution of the Moody Annexation Concept Plan

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner

Public Comment: Christine McDaniel-825 Cliffrose Way

MOTION WAS MADE BY Commissioner Rau, seconded by Commissioner Pirrone to Approve **PC-2022-04R**: A Resolution of the Moody Annexation Concept Plan

YEAS: Pirrone, Rau **2**

NAYS: Stout, Grimes **2**

MOTION FAILED

MOTION WAS MADE BY Commissioner Grimes, seconded by Commissioner Pirrone to deny approval for **PC-2022-04R** A Resolution of the Moody Annexation Concept Plan.

YEAS: Grimes, Stout **2**

NAYS: Rau, Pirrone **2**

MOTION FAILED

5. PUBLIC HEARING

PC-2022-05R A Resolution for the Greenway Corridor Comprehensive Plan Amendment

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner

MOTION WAS MADE BY Commissioner Pirrone , seconded by Commissioner Grimes to Approve **PC-2022-05R** A Resolution for the Greenway Corridor Comprehensive Plan Amendment . All Commission Members present voting Yes,

MOTION PASSED

Open: 8:06 pm **Closed:** 8:11 pm

C COMMUNICATIONS

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Commission approval may be sought for administrative actions in association with staff reports.

1. Town Attorney
2. Town Staff
3. Town Management
4. Commission Members
5. Chair

D ADJOURN

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8:16 pm



PLANNING COMMISSION REGULAR MEETING
Zoom Webinar and Town Council Chamber
3 S. Timber Ridge Parkway, Severance, CO 80550

MINUTES
REGULAR MEETING
Wednesday, February 15, 2023, at 6:00 PM

Present:

Chair:

Julie Stout

Vice-Chair:

Derek Grimes

Commissioners:

Zach Goodell

Terence Hennessy

Joe Pirrone

Brittany Vandermark

David Rau

Absent: David Rau, Joe Pirrone, & Derek Grimes (all excused)

Audience: Dave Lindsey-CR 90/23, Doug Carter, Taylor Henderson-Power Global, Steve Legino-10531 CR 84, Stephanie Lauer-Power Global, Jeremy Call-Logan Simpson, Larry Greene-Power Global

Staff:

Nicholas Wharton, Town Manager

Abdul Barzak, Town Planner

Leah Vanarsdall, Town Clerk

A. CALL TO ORDER

1. Roll Call

2. Pledge of Allegiance

3. Approval of Agenda

MOTION WAS MADE BY Commissioner Goodell, seconded by Chair Stout to Approve

the Agenda with Item 5 removed. All Commission Members present voting Yes,

MOTION PASSED

4. Public Comment

The purpose of the Public Comment is for members of the public to speak to the Planning Commission on any subject not scheduled on the agenda. To accomplish scheduled agenda items, comments should be limited to three minute for those attending in person or an appropriate time as deemed by the Chair. The Planning Commission shall make no decisions or take action on comments, but may choose to schedule the matter for a decision later. Those addressing the Planning Commission, please state your name and address. and sign-in.

None

5. Approval of 11.16.22 Minutes

Tabled until the next meeting for Commissioners to approve when the Commissioners may be present from the November, 2022, meeting.

B. REGULAR MEETING

1. Swearing in of Terrence Hennessy & Brittany Vandermark

- Legislative
- Staff Presentation: Nicholas Wharton, Town Manager
Brittany Vandermark was sworn in as a new Commission Member and Terence Hennessy was sworn in from Alternate to a Commission Member.

2. Density Requirements: Land Use Code

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner
MOTION WAS MADE BY Commissioner Vandermark, seconded by Commissioner Goodell to forward a recommendation of approval to the Town Council for Land Use Code changes regarding Density Requirements within the Land Use Code. All Commission Members present voting Yes,

MOTION PASSED

3. Application Processing: Land Use Code

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner
MOTION WAS MADE BY Commissioner Goodell, seconded by Commissioner Hennessy to forward a recommendation of approval to the Town Council for Land Use Code changes regarding Provisions and Procedures with the Land Use Code. All Commission Members present voting Yes,

MOTION PASSED

4. Buffering/Open Space/Trails Requirements: Land Use Code

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner
MOTION WAS MADE BY Commissioner Vandermark, seconded by Commissioner Hennessy to forward a recommendation of approval to the Town Council for Land Use Code changes regarding Buffering/Open Space/Trails Requirements within the Land Use Code. All Commission Members present voting Yes,

MOTION PASSED

5. Variance Request: BHS Solar UAR & Site Plan

- Legislative
- Staff Presentation: Abdul Barzak, Town Planner
Item deleted from Agenda

6. Resolution PC-2023-01R: BHS Solar UAR & Site Plan

- Quasi-Judicial
- Staff Presentation: Abdul Barzak, Town Planner

Public Comment: Dave Lindsey-CR90/23, Doug Carter-Power Global, Taylor Henderson-Power Global, Steve Legino-10531 CR 84

Presenter: Stephanie Lauer-Power Global

MOTION WAS MADE BY Commissioner Vandermark, seconded by Commissioner Hennessy to Approve **Resolution PC-2023-01R: BHS Solar UAR & Site Plan** subject to the conditions listed therein and forward to the Town Council. All Commission Members present voting Yes,

MOTION PASSED

C. COMMUNICATIONS

Commission approval may be sought for administrative actions in association with staff reports.

1. Town Staff
2. Town Management
3. Commission Members
4. Chair

D. ADJOURN

Adjourned at 7:15 pm



AGENDA ITEM SUMMARY

AGENDA ITEM	SUBMITTED BY	PRESENTED BY
Appointment of Chair and Vice-Chair	Nicholas Wharton, Town Manager	Nicholas J. Wharton, MPA
ACTION REQUESTED		
Management asks that the Planning Commission discuss the Chair and Vice-Chair appointments and take action. • Actions that may be taken: ○ Move to appoint a Chair for a one-year term ○ Move to appoint a Vice-Chair for a one-year term		<u>Action Requested</u> <u>Attorney Approved</u>
BRIEF SUMMARY		
Per Chapter 2, Article 5, Section 2-5-70 of the Severance Municipal Code: <i>The Planning Commission shall select a Chair who shall serve a term of one (1) year with eligibility for reelection. A Vice Chair may be selected from the entire membership of the Planning Commission. However, no alternate member shall be eligible to serve as an officer of the Planning Commission. In the absence of both the Chair and Vice Chair, any member of the Planning Commission may conduct the meeting.</i> (Ord. 2001-04 §1; Ord. 2007-07 §1; Ord. 2019-03 §3)		
PUBLIC SUPPORT/CONCERN		
None at this time.		
ANALYSIS AND RECOMMENDATION		
Management recommends that the Planning Commission take action and move to appoint a Chair and Vice-Chair for a one-year term.		
MATERIALS SUBMITTED		
The following materials were submitted and included in this packet: None		



AGENDA ITEM SUMMARY

AGENDA ITEM	SUBMITTED BY	PRESENTED BY
Resolution PC-2023-02R: Ziggi's Site Plan	Abdul Barzak, Town Planner	Abdul Barzak, Town Planner
ACTION REQUESTED		
Community and Economic Development and Town Management ask that the Severance Planning Commission review, discuss, and take action on Resolution PC-2023-02R and forward a recommendation to the Town Council on the Ziggi's Severance Site Plan. Actions that may be taken: 1. Approve PC-2023-02R and forward a recommendation of approval to the Town Council for the Ziggi's Severance Site Plan subject to the conditions listed therein. 2. Take No Action.		<u>Resolution</u> <u>Attorney Approved</u> <u>Action Requested</u>
BRIEF SUMMARY		
The applicant has submitted a Site Plan for a proposed 4,000-square-foot building to be located at 9843 E. Harmony Road, Severance, Colorado 80550. This building will be divided into a 1,500-square-foot Ziggi's Coffee Shop with a drive-thru, with the remaining 2,500 square feet to be available for future commercial tenants.		
PUBLIC SUPPORT/CONCERN		
None at this time		
ANALYSIS AND RECOMMENDATION		
Town staff is asking for the Planning Commission to review, discuss, and take action on PC-2023-02R and forward a recommendation of approval to the Town Council for the Ziggi's Severance Site Plan subject to the conditions listed therein.		
MATERIALS SUBMITTED		
The following materials were submitted and included in this packet: 1. Town Review Form (Generated by Town Staff) 2. Engineering Memo (Staff Generated) 3. Letter of Intent (Applicant Submitted) 4. Site Plan (Applicant Submitted, Staff Reviewed) 5. Traffic Impact Study (Applicant Submitted, Staff Reviewed) 6. Legal Description (Applicant Submitted, Staff Reviewed) 7. Combined Referral Comments 8. Resolution PC-2023-02R		



Town of Severance Review Comments

Date: 9.12.22 Resubmitted: 12.16.22, 2.7.23
 Project Name/Contact: Ziggi's Severance/Paul Bass (TST)
 Project Address: 9843 E. Harmony Road
 Customer/Project Number: 284 - American Eagle Properties attn. Jerry Helgeson
 Review Number: 3rd Submittal
 Project Coordinator: Abdul Barzak, Town Planner
 Recipients:

- ☒ MANAGEMENT
- ☒ PLANNING
- ☒ ENGINEERING
- ☒ TRAFFIC
- ☒ TOWN ATTORNEY
- ☒ PUBLIC WORKS
- ☒ POLICE
- ☒ BUILDING
- ☐ OTHER

The following comments must be addressed in order to proceed with the development process. All subsequent submittals should be submitted electronically.

Please submit a revised document addressing all comments along with a comment response letter to the project coordinator. Large plan sets should be submitted through Dropbox and a link provided.

With the project resubmittal, please indicate whether or not the change was made and provide a response as applicable. Please contact me if you have any questions.

Project Coordinator – Abdul Barzak, Town Planner, Town of Severance

Item 1	Applicant to address Staff Redlines and Comments	Resolved?
Notes	Applicant to address all final Staff comments and redlines. - Civil - Traffic - Legal	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes		
Item 2	ROW	Resolved?
Notes	A portion of the private improvements (parking lot) encroaches in the public road ROW of E Harmony Rd (WCR 74). The encroachment does not impede the widening of E Harmony Rd (WCR 74) to the ultimate section of 4 lanes of	☐ YES ☒ NO ☐ SEE ATTACHED

	through traffic. As shown, when E Harmony Rd (WCR 74) is widened to the ultimate section the standard 24' landscape strip would be reduced to 10' along this property and the 6' sidewalk would be located approximately 14' inside the ultimate ROW instead of along the ROW. Town Staff and Management have no issues as the ultimate build out of E. Harmony Road will not be affected. Town staff will work with the applicant to place considerate landscaping on this portion of ROW. Please see Town Attorney Item #1. Applicant must update site plan with necessary notes.	
Applicant Response		
Notes		
Item 3	Development Agreement	Resolved?
Notes	Prior to scheduling of Town Council public meeting, the applicant will need to finalize a Development Agreement please provide comments and edits.	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes		
Item 4	Variance Request	Resolved?
Notes	Sec. 16.6.20.9 of the Severance Land Use code requires, "A meandering community pathway that is a minimum of ten (10) feet wide shall be located within the buffer." This is the landscape buffer between the development and the roadway. The applicant has proposed a 6' path along the property edge to match the existing path to the east of the property. Variance Requests cannot be approved by Staff and can only be approved by Council. Variance has been submitted. Applicant will need to add variance request table sheet to Site Plan, see attached example from another project.	☐ YES ☒ NO ☒ SEE ATTACHED
Applicant Response		
Notes		
Item 5	Shared Access	Resolved?
Notes	The applicant is to enter into an agreement with the owner of Lot 2 (see Legal Item #1 below) to allow for the shared access with 9845 E. Harmony Road. This can be handled separate from the Site Plan approval.	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Agreement will be submitted separately	
Notes	No further comment, applicant has worked with owner of Lot 2.	
Item 6	Parking Table	Resolved?
Notes	See attached redlines, please update Site Plan	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Parking table has been updated.	

Notes	No further comment, applicant has resolved comment.	
Item 7	TIS LOS F- Site Access	Resolved?
Notes	Please see Traffic Engineering Comment # 1 and #3 below. Applicant to make minor technical adjustments to Variance Request Letter.	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Item 7	Referral Comments	Resolved?
Notes	Applicant to provide response to all received referral/stakeholder comments. - Remaining stakeholder comments from Windsor Severance Fire Rescue must be finalized. - Occupancy Loads - Hydrant Flow Testing	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Responses provided	
Notes	No further comment, applicant has provided referral responses to all stakeholder comments.	

Town Management – Nick Wharton & Lindsay Radcliff-Coombes, Town Management , Town of Severance

Item 1	No Comment	Resolved?
Notes	No additional comments at this time	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response		
Notes		

Planning – Josh Olhava & Logan Graves, Community Planner , Ayres Associates

Item 1	Landscaping	Resolved?
Notes	1. Current shrub selections of <i>Cornus sericea</i>, <i>Perovskia atriplicifolia</i>, and <i>Syringa patula</i> 'Miss Kim' do not provide buffering year-round. <i>Cornus sericea</i> is one of only three main buffer plants between the proposed drive-through and residential lots, so a year-round and dense planting strip is required to screen headlight spill. 2. Ensure that there are two layers of shrubs along the road to screen headlights. 3. Please incorporate screening on the Northern edge of the property abutting the residential lots. This may require moving the drive-through or building further South. A possibility for screening may be a retaining wall with plantings on top, dense hedges, berming, etc. 4. Ensure full screening from headlights year-round for Northeastern portion of the site. This may include	☒ YES ☐ NO ☐ SEE ATTACHED

	adding a retaining wall or denser landscaping along the lot line abutting residential lot 30. - According to Code Section 16.6.20.9, a community pathway that is a minimum of ten (10) feet wide shall be located within the landscape buffer adjacent to roadways. Current plan shows a path of six (6) feet. - Please include at least one (1) shade tree per parking island. - Consider replacing unused turf on the East side of the building with a communal plaza or seating space that can be utilized by employees and patrons.	
Applicant Response	(2) Evergreen trees and shrub plantings have been added to the expanded bed adjacent to the northeastern property edge to provide a more dense planting and to further screen drive thru headlights. (2) planting layers have been added along E. Harmony Road. - Additional plantings have been added along the northern edge of drive-thru lane. Drainage and site constraints preclude the addition of a screening wall or moving drive thru or building. (2) Evergreen trees and shrub plantings have been added to the expanded bed adjacent to Lot 30. - A Variance has been requested for a 6' walk. See Item 4. Variance Request on pg. 2 of 7. - Trees have been added to islands. - East side turf area has been modified to reduce turf. More plaza space has been considered, but the current configuration works best.	
Notes	No further comments	
Item 2	Parking & Access	Resolved?
Notes	- Bike parking for commercial uses should be conveniently located on site. Placement should be carefully considered to minimize pedestrian conflicts. - The ingress portion of the access is located on the adjacent lot to the east. The applicant must provide documentation allowing for the shared access. - The access with the drive-thru adjacent appears to be challenging configuration and could result in cars backing-up into the street. Applicant should consider other arrangements/ alignments.	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	- Bike parking has been added to plaza space. - The access has an access easement that will be utilized to enter the site. - The layout has been considered and this alignment worked best with site constraints.	
Notes	No further comments	
Item 3	Lighting	Resolved?
Notes		☒ YES

	1. Dark sky compliant lighting will be very important given the proximity of the residential lots. Staff would like the applicant to use a softer white bulb temperature (3500K) and have the lights dim at late night hours.	☐ NO ☐ SEE ATTACHED
Applicant Response	Softer white bulbs will be used	
Notes	No further comments	
Item 4	Refuse	Resolved? ☒ YES ☐ NO ☐ SEE ATTACHED
Notes	1. Refuse enclosures should be located out of or shielded public view. Either relocate the refuse enclosure to a location out of sight from the main road or enhance screening buffers so that it is not as visible when entering the site.	
Applicant Response	Refuse area was talked about with the owner and the architect and it was decided that it was more important to have it closer to the building rather than further away and across a drive aisle.	
Notes	No further comments	Resolved? ☒ YES ☐ NO ☐ SEE ATTACHED
Item 5	Elevations	
Notes	1. Incorporate awnings into the front-facing (southern) façade. Open-ended white or metal awnings are preferred. Vinyl awnings are not appropriate. Awnings should be mounted to highlight moldings that may be found above the storefront or to fit within a sign panel that may be part of the façade design. 2. Building design should incorporate agrarian features which may include: steeply pitched roof planes, dormer windows, or building shapes similar to barns, silos, and stables. 3. Increase visual interest on rear-facing (northern) building façade. Possible incorporations include: windows, awnings, fluctuating rooflines, unique architectural features, etc. Ensure adequate transparency on this façade as well.	
Applicant Response	Elevation comments have been addressed	
Notes	No further comments	

Civil Engineering – Chris Messersmith & Amber Messersmith , P.E , Colorado Civil Group, Inc.

Item 1	See attached Memo and Redlines	Resolved? ☐ YES ☒ NO
Notes	Engineering Comment Memo and Redlines are included in the dropbox link:	

	https://www.dropbox.com/scl/fo/mequs612qj3uj2dr2m9qe/h?dl=0&rlkey=luqmv0rbqk2mte3euo9gm7y7e	☒ SEE ATTACHED
Applicant Response		
Notes		
Item 2	Potable Water	Resolved?
Notes	The potable water for this project will be provided by the Town of Severance. This anticipated demand ranges from 1,659 gallons per day (GPD) (average day demand) to 5,891 GPD (max day demand) based on utility records for an existing Ziggis location and the proposed irrigation usage provided on the Landscape Plan. These projections include the two (2) additional 1,250 SF tenant spaces for future use. Town staff will provide additional water system capacity information at the Planning Commission and Town Council meetings.	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response		
Notes		
Item 3	Sanitary Sewer	Resolved?
Notes	The wastewater from this project will be directed to the Town of Severance Wastewater Treatment Facility (WWTF). This project is expected to contribute 1,659 gallons per day (GPD) (average day demand) of wastewater to 4,868 GPD (max day demand) of wastewater, based on utility records for an existing Ziggis location. These projections include the two (2) additional 1,250 SF tenant spaces for future use. In 2023, the WWTF operated at maximum of 94.3% of the permitted capacity. The WWTF remaining capacity is 8,796± GPD, which can accommodate this project.	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response		
Notes		
Item 4	Water Dedication	Resolved?
Notes	The Town's water dedication is based on Equivalent Residential Units (ERU) and the associated water meter size. One (1) Equivalent Residential Unit (ERU) provides a maximum of 205,000 gallons/year. The Total Average Demand of 701,326 gallons/year equates to 3.42 ERU's. Per the SMC Section 13-1-120, a 1.5" water meter requires 5.0 Equivalent Residential Units (ERU) to be dedicated to the Town. The Utility Report and Site Plan Set call out a 1.5" water meter for this building.	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes	To be handled in Development Agreement	
Item 5	Site Plan - Encroachment	Resolved?
		☐ YES

Notes	A portion of the private improvements (parking lot) encroaches in the public road ROW of E Harmony Rd (WCR 74). The encroachment does not impede the widening of E Harmony Rd (WCR 74) to the ultimate section of 4 lanes of through traffic. As shown, when E Harmony Rd (WCR 74) is widened to the ultimate section the standard 24' landscape strip would be reduced to 10' along this property and the 6' sidewalk would be located approximately 14' inside the ultimate ROW instead of along the ROW. Engineering does not have an issue with the encroachment.	☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes	To be handled in Development Agreement	

Traffic Engineering – Eli Farney, P.E, PTOE, JR Engineering, LLC

Item 1	LOF F at Site Access	Resolved?
Notes	The TIS shows a LOS F for the southbound left (SBL) at E Harmony Road and the site access in 2042. This will require a variance request from the Town's TIS criteria and TMP. Please submit a variance request letter to the Town for review.	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response	A variance request has been included with this submittal.	
Notes	Please see Item #3 below. Variance Submitted but needs minor revisions.	
Applicant Response		
Notes		
Item 2	Future Access Control	Resolved?
Notes	The Town will need the ability to provide access control in the future if there are safety issues at E Harmony Road and the site access. Appropriate language will be included in the Developer Agreement.	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Acknowledged	
Notes	To be handled in Development Agreement.	
Item 3	Variance Request	Resolved?
Notes	The variance request should discuss what is needed to make the site access operate at an acceptable LOS. Does the access need to be a RIRO or ¾ access? Would this create a hardship for the project? Are there feasibility issues?	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes		

Town Attorney – Keith Martin, Attorney, Hayashi & Macsalka, LLC

Item 1	Site Plan Set	Resolved?
Notes	See annotated Site Plan set for specific comments.	☐ YES ☒ NO ☐ SEE ATTACHED
Applicant Response		
Notes		

Public Works – John Zacklene, Public Works Director, Town of Severance

Item 1	No Comment	Resolved?
Notes	The asphalt from Cr21 past Fox Ridge W/B was just put down this year. We need to keep in mind of trees planted next to sidewalks for future root issues and hanging hazards. Will there be 3-meter pits going in for the splitting of the buildings water service?	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	There will be one meter pit to serve all three tenants	
Notes	No further comment.	

Police – Chief Gerdeman, Chief of Police, Severance Police

Item 1	No Comment	Resolved?
Notes	No comment at this time	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Acknowledged	
Notes	No further comment	

Building Department– Russ Weber, Chief Building Official, SAFEbuilt

Item 1	No Comment	Resolved?
Notes	No comment at this time	☒ YES ☐ NO ☐ SEE ATTACHED
Applicant Response	Acknowledged	
Notes	No further comment	

Please revise the plans accordingly and respond to all of the above action items in the **Applicant Response** boxes provided at your earliest convenience.

Once the project is resubmitted it will be referred out as necessary and any outstanding issues will be addressed with a comment response.

If you should have any questions, please contact me at 970-692-1556, or email.

Thank you,

A handwritten signature in black ink, appearing to read 'Abdul Barzak', with a large, stylized loop at the beginning and a horizontal line extending to the right.

Abdul Barzak

Town Planner

abarzak@townofseverance.org

Town of Severance

3 South Timber Ridge Parkway

PO BOX 339

Severance, CO 80546

970-692-1556

TO: Mr. Nick Wharton, Severance Town Manager
Ms. Lindsay Radcliff-Coombes, Severance Deputy Town Manager
Mr. Bill Cornelius, Severance Community Development Director
Mr. Abdul Barzak, Severance Town Planner

FROM: Chris Messersmith, Colorado Civil Group, Inc.
Amber Messersmith, Colorado Civil Group, Inc.
Ed Jansury, Colorado Civil Group, Inc.

DATE: February 24, 2023

SUBJECT: Ziggi's Coffee – Site Plan

CCG PROJECT NO: 0042.0012.03

TOWN CUSTOMER ID: 284

We have completed our review of the Ziggi's Coffee (Lot 1, Red Willow Subdivision) Site Plan 3rd submittal package that was received on February 7, 2023 . The following items were included with the submittal package (typically reviewed by engineering):

- Legal Description (8 ½" x 11")
- Drainage Plan (included in Site Plan Set)
- Drainage Report
- Utility Plans (included in Site Plan Set)
- Utility Report/Memo
- Variance Request Letter - Traffic Impact Study
- Variance Request Letter – Sidewalk Width
- SWMP Report
- Site Plan Set
- Response to Comments (Engineering)
- Response to Redlined Comments (Engineering)

We offer the following engineering comments:

General:

1. The property is located at 9843 CR 74 (E Harmony Road), being Lot 1, Red Willow Subdivision except for the 20' of ROW dedicated via Special Warranty Deed Reception No. 4562490.
2. The letter of intent states that the building will be split into 2 businesses (Ziggi's Coffee Shop and an Ice Cream Shop). However, the updated Utility Report states that the building will be split into 3 tenant spaces (Ziggi's Coffee Shop 1,500 sf, a 1,250 sf unknown space, and a 1,250 sf unknown space). The plans show a single water meter and single sanitary sewer service connection. The building will need to have single ownership.

3. Potable Water – The potable water for this project will be provided by the Town of Severance. This anticipated demand ranges from 1,659 gallons per day (GPD) (average day demand) to 5,891 GPD (max day demand) based on utility records for an existing Ziggi's location and the proposed irrigation usage provided on the Landscape Plan. These projections include the two (2) additional 1,250 SF tenant spaces for future use. Town staff will provide additional water system capacity information at the Planning Commission and Town Council meetings.
4. Sanitary Sewer – The wastewater from this project will be directed to the Town of Severance Wastewater Treatment Facility (WWTF). This project is expected to contribute 1,659 gallons per day (GPD) (average day demand) of wastewater to 4,868 GPD (max day demand) of wastewater, based on utility records for an existing Ziggi's location. These projections include the two (2) additional 1,250 SF tenant spaces for future use. In 2023, the WWTF operated at maximum of 94.3% of the permitted capacity. The WWTF remaining capacity is 8,796± GPD, which can accommodate this project.

Title Commitment:

5. An updated Title Commitment prepared by Chicago Title Company was provided with an effective date of October 24, 2022 and indicates the vested owners as:

AMERICAN EAGLE PROPERTIES INC., a Colorado Corporation

Oil & Gas:

6. According to COGCC website, are no oil/gas wells located on this property.

Drainage Report:

7. A Final Drainage Report titled "Final Drainage Report for Ziggi's Coffee – Severance Lot 1, Red Willow Subdivision" prepared by TST, Inc. dated February 2023 was submitted and approved.
8. Please submit a final report with the owner's certification signed and PE signature and stamp.

Utility Report:

9. A Utility Memo titled "Red Willow Subdivision Lot 1 (Ziggi's) Utility Memo" prepared by TST dated February 2023 was provided and reviewed.
10. A summary table for the water service calculations was provided. The International Plumbing Code (IPC) was used for the calculations, which is acceptable. Please provide the water fixture count tables for each of the building units in the report for the water service sizing calculations (Ziggi's, future tenant, and future tenant). (*repeat*)
11. For the Water Demand we reviewed actual water bills from a Ziggi's located in Longmont (129 Hover St.) The Longmont café style Ziggi's is smaller whereas the Severance Ziggi's is larger and has a drive-thru. According to the Applicant there is only one bathroom difference between the buildings. It was assumed that the Longmont Ziggi's had no irrigation usage. The Domestic Water usage from 2018-2022 was averaged. We assumed the future tenant spaces will have the same water usage as Ziggi's per building square foot. We calculated the following:

- Total Building Domestic Average Demand = 605,173 gallons/year
- Estimated Irrigation Demand (per Landscape Plan) = 93,153 gallons/year
- Total Average Demand = **701,326 gallons/year**

12. Water Dedication – The Town’s water dedication is based on Equivalent Residential Units (ERU) and the associated water meter size. One (1) Equivalent Residential Unit (ERU) provides a maximum of 205,000 gallons/year. The Total Average Demand of 701,326 gallons/year equates to 3.42 ERU’s. Per the SMC Section 13-1-120, a 1.5” water meter requires 5.0 Equivalent Residential Unit (ERU) to be dedicated to the Town. The Utility Report and Site Plan Set call out a 1.5” water meter for this building.
13. Refer to report for minor redline comments. Please revise and resubmit. The final utility memo needs to be stamped and signed by a P.E.

Traffic Study:

14. The Traffic Impact Study (TIS) titled “Ziggi’s Coffee Traffic Impact Study” prepared by Sustainable Traffic Solutions, Inc. dated December 9, 2022 was previously provided. A TIS Variance Request Letter dated February 6, 2023 was submitted regarding the LOS.

Geotechnical Report:

15. A Geotechnical Report titled “Geotechnical Exploration Letter Harmony Centre Severance, Colorado” prepared by Olsson dated July 22, 2019 revised September 23, 2019 was submitted. This Geotechnical Letter is an Addendum Letter to the Harmony Centre Geotechnical Report dated December 24, 2018 regarding the widening of WCR 74. The 2018 Soils Report and 2019 Addendum Letter were previously reviewed.

Site Plan:

16. Sheet 4 (Site Plan, Encroachment) – A portion of the private improvements (parking lot) encroaches in the public road ROW of E Harmony Rd (WCR 74). The encroachment does not impede the widening of E Harmony Rd (WCR 74) to the ultimate section of 4 lanes of through traffic. As shown, when E Harmony Rd (WCR 74) is widened to the ultimate section the standard 24’ landscape strip would be reduced to 10’ along this property and the 6’ sidewalk would be located approximately 14’ inside the ultimate ROW instead of along the ROW. Engineering does not have an issue with the encroachment.
17. Sheet 4 (Site Plan, Site Access) – The site access is an existing private access created for the adjacent lot which contains the Dollar General Store. Refer to Town Attorney Comments. Site access modifications and construction need to be coordinated with Dollar General.
18. Sheet 6 (Utility Plan) – The plan shows a proposed 1.5-inch water service and meter and connection to the existing 4-inch sanitary sewer service stub-out. Utility connections are off utilities in E Harmony Rd (WCR 74).
19. If the disturbed area of the project is greater than 1-acre, the Applicant will need to prepare a SWMP report and obtain a CDPHE permit prior to construction. A SWMP report was included with this submittal.
20. Sheet 13 (Landscape Plan) – Call out the POC (point of connection) for the irrigation system, which must be downstream of the water meter (*repeat*).

21. Sheets 9-10 (Water Details) – The City of Greeley has updated their Water and Sewer Design Criteria and Construction Specifications as of January 2023. The Town of Severance needs to review the updated 2023 City of Greeley details and determine which details are appropriate for this project.
22. Sheet 11 (Detail) - Add a pavement section detail for the Recommend Pavement Thickness for E Harmony Rd per Table 4 & 5 of the Geotechnical Report titled “Geotechnical Exploration Letter Harmony Centre Severance, Colorado” prepared by Olsson dated July 22, 2019 revised September 23, 2019. *(repeat)*
23. Refer to the Site Plan redlines for any additional comments.

Additional comments can be found on the document redlines, which are listed below and included in the dropbox link below:

<https://www.dropbox.com/scl/fo/mequs612qj3uj2dr2m9qe/h?dl=0&rlkey=luqmv0rbqk2mte3euo9gm7y7e>

- 0042.0012.03 CD-SP 3rdRedlines_(2023.02.24).pdf
- 0042.0012.03 UR Redlines_(2023.02.24).pdf

Please let us know if you have any questions or comments regarding this memo. We would be willing to meet with the applicant to review these comments.



July 6, 2022

Ziggy's Drive Thru-Severance – Letter of Intent
Project No. 1076.0005

This project is situated on Lot 1 of the Red Willow Subdivision, located west of the intersection of Weld County Road 21 and the Weld County Road 74. Zoned as Suburban Perimeter and consisting of 0.74 acres, this project will include a 4,036 sf building divided into a 2000sf Ziggy's Drive Thru coffee shop and a 2000sf ice cream shop. The Ziggy's Coffee shop, located on the west end of the building, will utilize a drive thru lane running alongside the east, north and west side of the building with the order sign situated along the northern leg of the drive-thru lane and a service window located on the western side of the building.

Off street parking is provided for patrons with a total of 27 total parking spots. As required by Severance Code, two accessible spaces have also been provided.

Access to the site will be provided from an existing connection to West 4th Street / CR 74. This access is shared with the existing Dollar General Store, located to the east of the project site. There is currently a Traffic Impact Study in progress to account for the traffic generated by this project. The report will be provided to the Town when it is completed. Pedestrian access will be provided from the proposed walk running along the south side of the property.

Utilities are to be extended north from existing water and sanitary sewer services running along West 4th Street / CR 74.

Landscaping along West 4th Street / CR 74 is designed to provide shade to proposed sidewalk users with shade trees and screen headlights from the proposed parking lot with evergreen shrub material. Evergreen screening has also been provided along the western edge of the drive thru lane to screen headlights as customers utilize the drive thru lane. Finally, native seeding will cover open space in the interim area between existing road conditions for 4th Street / CR 74 and the ultimate road condition.

If there are any questions, concerns, or if additional information is required, please feel free to contact me.

Sincerely,

TST, INC. CONSULTING ENGINEERS

Paul D. Bass, ASLA

748 Whalers Way
Suite 200
Fort Collins, CO 80525
970.226.0557 main
970.226.0204 fax

ideas@tstinc.com
www.tstinc.com

ZIGGI'S SEVERANCE SITE PLAN

LOT 1 RED WILLOW SUBDIVISION SITUATE IN SECTION 34, TOWNSHIP 7 NORTH,
RANGE 67 WEST, OF THE 6TH P.M;
TOWN OF SEVERANCE, COUNTY OF WELD, STATE OF COLORADO

JANUARY 2023

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ABBREVIATIONS

AC-FT	ACRE FEET
ASSY.	ASSEMBLY
B.O.	BLOW OFF
B.V.C.	BEGIN VERTICAL CURVE
DIA	DIAMETER
ESMT	EASEMENT
E.V.C.	END VERTICAL CURVE
FES	FLARED END SECTION
F.H.	FIRE HYDRANT
FL	FLOW LINE
FG	FINISHED GRADE
GTV	GATE VALVE
H.D.P.E.	HIGH DENSITY POLYETHYLENE PIPE
HP	HIGH POINT
IN	INCH
INV	INVERT
L	LEFT
L.F.	LINEAL FEET
LP	LOW POINT
M.H.	MANHOLE
MIN.	MINIMUM
M.R.J.	MECHANICALLY RESTRAINED JOINT
N.T.S.	NOT TO SCALE
P.C.	POINT OF CURVATURE
P.I.	POINT OF INTERSECTION
P.R.C.	POINT OF REVERSE CURVE
P.T.	POINT OF TANGENCY
P.V.C.	POLY VINYL CHLORIDE PIPE
P.V.I.	POINT OF VERTICAL INTERSECTION
PKG	PARKING
R	RADIUS
R.O.W.	RIGHT OF WAY
SEWER	SANITARY SEWER
S	SLOPE
STA.	STATION
ST-X	STORM SEWER
T.B.	THRUST BLOCK
T.O.P.	TOP OF PIPE
T.R.M.	TURF REINFORCEMENT MAT
TYP.	TYPICAL
W/	WITH
W/L	WATER LINE
V.C.	VERTICAL CURVE

LEGEND

EXISTING FIRE HYDRANT	
EXISTING 5' CONTOUR	
EXISTING 1' CONTOUR	
EXISTING RIGHT-OF-WAY	
EXISTING CABLE TV	
EXISTING ELECTRIC	
EXISTING FIBER OPTIC	
EXISTING GAS	
EXISTING IRRIGATION	
EXISTING OVERHEAD ELECTRIC	
EXISTING SANITARY SEWER	
EXISTING STORM DRAIN	
EXISTING TELEPHONE	
EXISTING UTILITY PEDESTAL/VAULT	
EXISTING WATER W/ VALVE	
EXISTING EASEMENT	
PROPOSED EASEMENT	
PROPOSED RIGHT-OF-WAY	
PROPOSED 1' CONTOUR	
PROPOSED 5' CONTOUR	
PROPOSED FLOW ARROW	
TOP OF FOUNDATION ELEVATION	TOF=51.13
FINISHED GRADE	F.G.=50.63
PROPOSED SWALE CROSS-SECTION	
PROPOSED FIRE HYDRANT	
PROPOSED WATER LINE	
PROPOSED WATER SERVICE	
PROPOSED THRUST BLOCK	
PROPOSED WATER VALVE	
PROPOSED IRRIGATION LINE	
PROPOSED IRRIGATION SERVICE	
PROPOSED STORM LINE W/MANHOLE	
PROPOSED STORM INLET	
PROPOSED SANITARY SEWER W/MANHOLE	
PROPOSED SANITARY SEWER SERVICE W/MANHOLE	
PROPOSED WATTLE	
PROPOSED CURB INLET FILTER	
PROPOSED RIPRAP PAD	
PROPOSED VEHICLE TRACKING CONTROL PAD	
PROPOSED SILT FENCE	
DRAINAGE BASIN	
X = AREA, ACRES	
AB-C = BASIN NUMBER	
Y = 100-YR RUNOFF COEFFICIENT "C"	
PROPOSED DRAINAGE DESIGN POINT	
PROPOSED BASIN BOUNDARY	



VICINITY MAP
NOT TO SCALE

APPLICANT/ OWNER

JERRY HELGESON
JHELGESON@BUDHOUSEAED.COM
AMERICAN EAGLE PROPERTIES, INC.
740 DOCE LANE
WINDSOR, CO 80550
(970) 381-2500

ENGINEERING & SURVEYING

JON SWEET
JSWEET@TSTINC.COM
TST, INC. CONSULTING ENGINEERS
748 WHALERS WAY, SUITE 200
FORT COLLINS, CO 80525
(970) 226-0557

PROJECT ADDRESS

9843 COUNTY ROAD 74
SEVERANCE, CO 80550

PROJECT BENCHMARK

A 2.5" ALUMINUM CAP STAMPED LS 12374 AT THE SOUTHEAST CORNER OF SECTION 34
NAVD 88 - ELEV. 4938.86

FLOOD ZONE

THIS PROPERTY LIES IN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL
CHANCE FLOODPLAIN. FEMA FIRM PANEL 08123C1213E, DATED JANUARY 20, 2016

BASIS OF BEARINGS

THE SOUTH LINE OF THE SOUTHEAST QUARTER OF SECTION 34, TOWNSHIP 7 NORTH, RANGE
67 WEST OF THE SIXTH PRINCIPAL MERIDIAN, BEING MONUMENTED AS SHOWN HERON IS
ASSUMED TO BEAR S89°40'27"W A DISTANCE OF 2634.31 FEET.

OWNER APPROVAL:

THIS UNDERSIGNED OWNER HAS REVIEWED AND APPROVES THE PROPOSED IMPROVEMENTS SHOWN IN THIS SET OF DRAWINGS.

REVIEWED THIS _____ DAY OF _____, 20__.

OWNER

PLANNING COMMISSION APPROVAL

RECOMMENDED FOR APPROVAL THIS _____ DAY OF _____, 20__.

CHAIRMAN,
SEVERANCE PLANNING COMMISSION

TOWN PLANNING REVIEW

REVIEWED THIS _____ DAY OF _____, 20__.

TOWN PLANNER

WINDSOR SEVERANCE FIRE RESCUE APPROVAL:

REVIEWED THIS THE _____ DAY OF _____, 20__.

FIRE MARSHAL

TOWN ENGINEER'S REVIEW:

CONSTRUCTION MUST BE IN ACCORDANCE WITH APPLICABLE TOWN OF SEVERANCE CONSTRUCTION STANDARDS. THE
TOWN'S ACCEPTANCE ALLOWS FOR PLAN DISTRIBUTION AND PERMIT APPLICATION. THE TOWN'S ACCEPTANCE SHALL
NOT RELIEVE THE DESIGN ENGINEER'S RESPONSIBILITY FOR ERRORS, OMISSIONS, OR DESIGN DEFICIENCIES FOR
WHICH THE TOWN IS HELD HARMLESS.

REVIEWED THIS THE _____ DAY OF _____, 20__.

TOWN ENGINEER

TOWN COUNCIL CERTIFICATE:

THIS IS TO CERTIFY THAT THE SITE PLAN WAS APPROVED ON THE _____ DAY OF _____, 20__, BY
RESOLUTION NO. _____, PASSED AND ADOPTED AT THE REGULAR MEETING OF THE TOWN COUNCIL OF THE
TOWN OF SEVERANCE, HELD ON THIS _____ DAY OF _____, 20__, AND MAY BE FILED WITH THE
CLERK AND RECORDER OF WELD COUNTY.

MAYOR

ATTEST:

TOWN CLERK

LEGAL DESCRIPTION

LOT 1, RED WILLOW SUBDIVISION. TOWN OF SEVERANCE, COUNTY OF WELD,
STATE OF COLORADO. EXCEPT THOSE PORTIONS DESCRIBED IN DEEDS RECORDED
NOVEMBER 25, 2019 AT RECEPTION NO. 4544309 AND JANUARY 30, 2020 AT
RECEPTION NO. 4562490.

WATER DEDICATION

SEE WATER DEDICATION REQUIREMENTS SUMMARY TABLE FOR THE NUMBER OF EQUIVALENT RESIDENTIAL UNITS (ERU) OF WATER REQUIRED FOR
DEVELOPMENT OF LOT. NO BUILDING PERMITS SHALL BE ISSUED UNLESS AND UNTIL THE TOWN BECOMES TITLED OWNER OF ALL WATER RIGHTS
REQUIRED FOR DEVELOPMENT. IF, IN THE FUTURE, THE ACTUAL ANNUAL WATER NEEDS OF DEVELOPMENT EXCEED THE PROJECTED WATER
DEDICATION REQUIREMENT FOR DEVELOPMENT, THEN THE TOWN RESERVES THE RIGHT TO REQUIRE OWNER TO ACQUIRE AND DEDICATED
ADDITIONAL WATER RIGHTS IN AN AMOUNT TO MAKE UP FOR ANY SHORTFALL AND IN A FORM SOLELY DETERMINED BY THE TOWN.

WATER DEDICATION REQUIREMENT SUMMARY TABLE								
COVERAGE	AREA (SF)	USE	DEMAND TYPE	ESTIMATED WATER DEMAND (gallons/year)	ESTIMATED TOTAL WATER DEMAND (gallons/year)	WATER METER SIZE	CALCULATED ERU ¹	REQUIRED ERU ²
Building - Unit 1	1,500	Ziggi's - Commercial	Domestic In-Building	226,940	701,327	1.5"	3.42	5
Building - Unit 2	1,250	Future - Commercial	Domestic In-Building	189,117				
Building - Unit 3	1,250	Future - Commercial	Domestic In-Building	189,117				
Irrigated Landscaping	18,371		Irrigation	96,153				

¹ Calculated ERU is based on One(1) ERU equal to 205,000 gallons/year

² Required ERU per SMC 13-1-120

REVISIONS

NO.	DATE	DESCRIPTION

DRAWN

BAMG

CHECKED

JFS

DESIGNED

BAMG

FILENAME

0005_COVER & NOTES

ZIGGI'S SEVERANCE SITE PLAN

COVER SHEET

TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO.

1076.0005.00

SCALE

N.T.S.

DATE

JANUARY 2023

SHEET

1 of 15

2/7/2023 8:59 AM

GENERAL NOTES:

1. ALL WORK WITHIN THE PUBLIC RIGHT-OF-WAY AND/OR EASEMENT AND ALL ON-SITE UTILITY WORK SHALL CONFORM TO THE TECHNICAL SPECIFICATIONS AND DESIGN CRITERIA FOR PUBLIC IMPROVEMENT PROJECTS OF THE TOWN OF SEVERANCE AND THE GRANTOR OF THE EASEMENT.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE IN CONFORMANCE WITH THE LATEST STANDARDS AND SPECIFICATIONS OF THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL HAVE IN HIS POSSESSION AT ALL TIMES (1) SIGNED COPY OF THE PLANS, STANDARDS, AND SPECIFICATIONS AS APPROVED BY THE APPROPRIATE GOVERNING AGENCY. THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FOR ANY VARIANCE TO THE ABOVE DOCUMENTS.
3. THE CONTRACTOR SHALL OBTAIN, AT HIS OWN EXPENSE, ALL APPLICABLE CODES, LICENSES, STANDARDS, PERMITS, BONDS ETC. WHICH ARE NECESSARY TO PERFORM THE PROPOSED WORK.
4. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND MAY NOT INCLUDE ALL LINES PRESENT. THE CONTRACTOR WILL BE RESPONSIBLE FOR CALLING THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AND COORDINATING FIELD LOCATIONS OF EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING GRADING AND UTILITY WORK.
5. LOCATIONS AND ELEVATIONS OF EXISTING IMPROVEMENTS TO BE MET (OR AVOIDED) BY WORK TO BE DONE SHALL BE CONFIRMED BY THE CONTRACTOR THROUGH FIELD EXPLORATIONS PRIOR TO CONSTRUCTION. CONTRACTOR SHALL REPORT TO THE ENGINEER ANY DISCREPANCIES BETWEEN HIS MEASUREMENTS AND THESE PLANS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE APPROPRIATE FIRE DEPARTMENT OF ALL STREET CLOSURES AND EXISTING FIRE HYDRANTS TAKEN OUT OF SERVICE AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
7. ANY CONSTRUCTION DEBRIS OR MUD DROPPED INTO MANHOLES, INLETS, PIPES OR TRACKED ONTO EXISTING ROADWAYS SHALL BE REMOVED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL REPAIR ANY EXCAVATIONS OR PAVEMENT FAILURES CAUSED BY HIS CONSTRUCTION. THE CONTRACTOR SHALL PROPERLY BARRICADE THE CONSTRUCTION SITE UNTIL CONSTRUCTION COMPLETE.
8. PRIOR TO BEGINNING THE WORK, THE CONTRACTOR SHALL OBTAIN ANY WRITTEN AGREEMENTS FOR INGRESS AND EGRESS TO THE WORK FROM ADJACENT PRIVATE PROPERTY OWNERS. ACCESS TO ANY ADJACENT PRIVATE PROPERTY SHALL BE MAINTAINED THROUGHOUT THE CONSTRUCTION PERIOD.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS NOT OBTAINED BY THE OWNER OR OWNER'S REPRESENTATIVES AND PAY ALL FEES AS REQUIRED BY THE CONSTRUCTION COVERED IN THESE PLANS.
10. EXCEPT FOR MATERIALS DESIGNED TO BE RELOCATED ON THIS PLAN, ALL OTHER CONSTRUCTION MATERIALS SHALL BE NEW.
11. NO WORK SHALL BE BACKFILLED (INCLUDING BEDDING MATERIAL ABOVE THE SPRING LINE OF THE PIPE) UNTIL THE CONSTRUCTION HAS BEEN INSPECTED AND APPROVED FROM BACKFILLING BY THE APPROPRIATE GOVERNING AGENCY.
12. ALL WORK AND MATERIALS WILL BE SUBJECT TO INSPECTION AND APPROVAL BY THE OWNER OR THE OWNER'S REPRESENTATIVE.
13. SHOP DRAWINGS AND MATERIAL SPECIFICATIONS SHALL BE SUBMITTED TO OWNER OR THE OWNER'S REPRESENTATIVE.
14. ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND FEDERAL APPLICABLE LAWS AND REGULATIONS.
15. ALL ESTIMATES OF QUANTITIES ARE FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR DETERMINING ALL QUANTITIES. CONTRACTOR SHALL PROVIDED ALL WORK AND MATERIALS AS SHOWN ON THESE PLANS.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR JOB SITE SAFETY OF HIS OWN PERSONNEL, ALL VISITORS TO THE SITE, AND THE GENERAL PUBLIC INCLUDING, BUT NOT LIMITED TO, TRENCH EXCAVATION AND SHORING, TRAFFIC CONTROL, AND SECURITY NOT LIMITED TO NORMAL WORKING HOURS.
17. THE CONTRACTOR SHALL BE RESPONSIBLE REPAIRING ALL EXISTING FEATURES TO REMAIN THAT ARE DAMAGED DURING CONSTRUCTION ACTIVITIES TO EQUAL OR BETTER CONDITION, AT HIS OWN EXPENSE.
18. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL SITE IMPROVEMENTS (INCLUDING BUT NOT LIMITED TO: UTILITIES, STRUCTURES, PAVING, LANDSCAPING, ETC.) SUCH THAT NO DAMAGE IS DONE TO SITE IMPROVEMENTS (I.E.: SAWCUTTING NEW PAVEMENT). SITE IMPROVEMENTS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER AT NO ADDITIONAL COST TO THE OWNER.
19. IF, DURING CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE THAT A PRIOR UNIDENTIFIED SITUATION IS PRESENT, THE CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY.
20. THE CONTRACTOR SHALL REMOVE ALL DEBRIS RESULTING FROM WORK UNDER THIS CONTRACT TO AN APPROVED DUMP SITE.
21. DIMENSIONS SHOWN ON THE PLANS ARE TO FACE OF CURB LINE IN CURBED AREA AND EXTERIOR FACE OF BUILDING, AND TO CENTERLINE OF UTILITIES, UNLESS OTHERWISE SPECIFIED.
22. USE ONLY DIMENSIONS PROVIDED ON THESE PLANS. DO NOT SCALE DRAWINGS. INFORM ENGINEER IF ANY DISCREPANCIES AND/OR MISSING INFORMATION.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ACCESS TO ADJACENT PARCELS DURING ALL HOURS OF OPERATION FOR THE BUSINESSES LOCATED ON THOSE PARCELS.
24. CONTRACTOR TO OBTAIN TEMPORARY POWER, TELEPHONE AND WATER FOR THE SITE.
25. CONTRACTOR TO REFER TO DRAWINGS ISSUED BY THE ARCHITECT, TO ENSURE COORDINATION OF EXACT LOCATION AND DIMENSIONS OF BUILDING EXITS, RAMPS, TRUCK DOCKS, UTILITY ENTRANCE LOCATIONS AND GRADES AROUND THE BUILDING. IMMEDIATELY NOTIFY ENGINEER AND ARCHITECT OF ANY DISCREPANCIES.
26. REFER TO ARCHITECTURAL DRAWINGS FOR ALL IMPROVEMENTS BETWEEN THE BUILDING AND THE SIDEWALK SURROUNDING THE BUILDING.
27. CONTRACTOR MUST COORDINATE CONSTRUCTION WITH OWNER AND ADJACENT LOT OWNER/CONSTRUCTION MANAGER
28. THE CONTRACTOR SHALL OBTAIN A COPY OF THE STANDARD SPECIFICATIONS AND DETAILS OF ALL AGENCIES EXERCISING JURISDICTION OVER THIS PROJECT. A COPY OF THESE SPECIFICATIONS AND DETAILS SHALL BE MAINTAINED ON THE JOBSITE AT ALL TIMES. A COPY OF ALL APPLICABLE STANDARD DETAILS AND SPECIFICATIONS ARE INCORPORATED HEREIN BY REFERENCE.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING ADJACENT CITY STREETS FREE AND CLEAN OF ALL DEBRIS AND DIRT FROM JOB SITE.

GRADING:

1. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION OF ALL PROPERTY CORNERS. ANY PROPERTY CORNERS DISTURBED OR DAMAGED BY GRADING ACTIVITIES SHALL BE RESET BY A PROFESSIONAL LAND SURVEYOR LICENSED IN THE STATE OF COLORADO, AT THE CONTRACTORS EXPENSE.
2. THE CONTOUR LINES AND BUILDING FLOOR ELEVATIONS SHOWN ARE TO FINISH GRADE FOR SURFACE OF PAVEMENT, TOP OF SIDEWALKS AND CURBS, TOP OF FLOOR SLABS, ETC. ALL SPOT ELEVATIONS SHOWN ARE TO FLOWLINE UNLESS OTHERWISE INDICATED. REFER TO TYPICAL SECTIONS FOR MULCH, SOD, PAVING, SLAB AND AGGREGATE BASE THICKNESS TO DEDUCT FOR GRADING LINE ELEVATIONS.
3. TOP OF CURB AND SIDEWALK ELEVATIONS AT LOCATIONS OTHER THAN THE SIDEWALK AROUND THE BUILDING SHALL BE 0.5' ABOVE CUTTER ELEVATIONS OTHERWISE NOTED. IN AREAS WITH SIDEWALK ABUTTING BACK OF CURB, TOP OF CURB ELEVATIONS SHALL BE EQUAL TO SIDEWALK ELEVATIONS.
4. THE CONTRACTOR SHALL FINISH GRADE SLOPES AS SHOWN NO STEEPER THAN ON FOOT VERTICAL IN FOUR FEET HORIZONTAL, UNLESS OTHERWISE NOTED.
5. CONTRACTOR SHALL GRADE LANDSCAPED AREAS TO PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDINGS AND SIDEWALKS WHEN FINISH LANDSCAPE MATERIALS ARE IN PLACE.
6. THE CONTRACTOR SHALL CLEAN OUT ALL EXISTING AND PROPOSED INLETS, PIPES AND MANHOLES OF DEBRIS AND SEDIMENT AT COMPLETION OF SITEWORK. THIS WORK SHALL BE DONE TO THE SATISFACTION OF THE OWNER, AT CONTRACTOR EXPENSE.
7. CONTRACTOR SHALL COORDINATE TESTING ACTIVITIES WITH THE GEOTECHNICAL ENGINEER.
8. ALL GRADING, COMPACTION, AND PAVEMENT CONSTRUCTION WILL BE IN ACCORDANCE WITH RECOMMENDATIONS FROM THE GEOTECHNICAL INVESTIGATION. (SEE GEOTECHNICAL REPORT NOTE, THIS SHEET)

EROSION & SEDIMENT CONTROL:

1. THIS PROJECT REQUIRES A PERMIT FOR STORMWATER DISCHARGE ASSOCIATED WITH CONSTRUCTION ACTIVITY FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT. CONTRACTOR TO COMMENCE WORK ON THIS SITE ONLY AFTER AN ACTIVE PERMIT NUMBER HAS BEEN OBTAINED FROM THE COLORADO DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT.
2. THE CONTRACTOR SHALL OBTAIN AND ~~READ~~ THE STORMWATER MANAGEMENT PLAN (SWMP) PREPARED BY [XXXXXXXXXX] FOR THIS PROJECT. THE CONTRACTOR SHALL ENSURE THAT A COPY OF THIS PLAN IS ON-SITE AT ALL TIMES AND THAT PERMIT COVERAGE IS APPLIED FOR PRIOR TO THE START OF CONSTRUCTION.
3. THE CONTRACTOR SHALL INSTALL EROSION/SEDIMENTATION CONTROLS PRIOR TO ANY SITE PREPARATION WORK (E.G., CLEARING, GRUBBING, OR EXCAVATION).
4. THE PLACEMENT OF EROSION/ SEDIMENTATION CONTROLS SHALL BE IN ACCORDANCE WITH THE EROSION CONTROL PLAN PREPARED FOR THE PROJECT.
5. CONTRACTOR TO ADJUST EROSION CONTROL MEASURES AS NEEDED FOR VARIOUS PHASES OF WORK.
6. CONTRACTOR TO ENSURE THAT NO DIRT AND SEDIMENT IS TRACKED ONTO ADJACENT STREETS AND WATERWAYS.
7. A GROUNDWATER DISCHARGE PERMIT IS REQUIRED FROM THE STATE ENGINEER'S OFFICE, PRIOR TO PUMPING IT OUT.
8. GROUNDWATER SHALL BE SAMPLED AND SENT TO AN APPROVED LABORATORY FOR TESTING PRIOR TO BEING DISCHARGED. TESTING SHALL BE IN ACCORDANCE WITH PERMIT FOR STORMWATER DISCHARGE AND ANY TOWN OF SEVERANCE REQUIREMENTS.
9. APPROVED EROSION AND SEDIMENT CONTROL "CONTROL MEASURES" (CMS) SHALL BE MAINTAINED AND KEPT IN GOOD REPAIR FOR THE DURATION OF THIS PROJECT. AT A MINIMUM, THE CONTRACTOR SHALL INSPECT ALL CMS EVERY 14 DAYS, AND AFTER ALL SIGNIFICANT PRECIPITATION EVENTS I.E. RAINFALL, SNOWMELT. ALL NECESSARY MAINTENANCE AND REPAIR ACTIVITIES SHALL BE COMPLETED WITHIN TWENTY-FOUR (24) HOURS AFTER DIRECTION BY THE CITY INSPECTOR. ACCUMULATED SEDIMENT AND CONSTRUCTION DEBRIS SHALL BE REMOVED WEEKLY FROM ALL CMS, OR AT AN TIME THAT SEDIMENT OR CONSTRUCTION DEBRIS ADVERSELY IMPACTS THE FUNCTIONING OF THE CMS.
10. TOPSOIL SHALL BE STOCKPILED WITHIN LIMITS OF CONSTRUCTION FOR USE ON AREAS TO BE RE-VEGETATED. ANY AND ALL STOCKPILES SHALL BE PLACED IN AN APPROVED LOCATION AND PROTECTED FROM EROISVE ELEMENTS USING MEASURES SPECIFIED IN THE EROSION CONTROL PLAN.
11. SOILS THAT WILL BE STOCKPILED FOR MORE THAN THIRTY (30) DAYS SHALL BE MULCHED AND SEEDED WITH A TEMPORARY OR PERMANENT GRASS COVER WITHIN FOURTEEN (14) DAYS OF STOCKPILE CONSTRUCTION.
12. ANY SETTLEMENT OR SOIL ACCUMULATIONS BEYOND THE LIMITS OF CONSTRUCTION DUE TO GRADING OR EROSION SHALL BE REPAIRED IMMEDIATELY BY THE CONTRACTOR. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR REMEDIATION OF ANY ADVERSE IMPACTS TO ADJACENT WATERWAYS, WETLANDS, PROPERTIES, ETC. RESULTING FROM WORK DONE AS PART OF THIS PROJECT.
13. A WATER SOURCE MUST BE AVAILABLE IN SITE DURING EARTHWORK OPERATIONS AND UTILIZED AS REQUIRED TO MINIMIZE DUST FROM EARTHWORK EQUIPMENT AND WIND.
14. THE CONTRACTOR MUST KEEP ALL POLLUTANTS, INCLUDING SEDIMENT, CONSTRUCTION DEBRIS AND TRENCH BACKFILL MATERIALS FROM ENTERING THE STORM SEWER SYSTEM.
15. ALL SPILLS INCLUDING, BUT NOT LIMITED TO, PETROLEUM PRODUCTS, SOLVENT, AND CEMENT SHALL BE CLEANED UP IMMEDIATELY. THE OWNER SHALL BE NOTIFIED IMMEDIATELY.
16. THE CONTRACTOR SHALL ENSURE THAT ALL LOADS OF CUT AND FILL MATERIAL IMPORTED TO OR EXPORTED FROM THE SITE SHALL BE PROPERLY COVERED TO PREVENT LOSS OF THE MATERIAL DURING TRANSPORT ON PUBLIC RIGHT-OF-WAY.
17. THE CONTRACTOR SHALL ENSURE THAT ALL MATERIAL EXPORTED FROM THE SITE, IS DISPOSED OF AT A SITE PERMITTED TO ACCEPT SUCH MATERIAL.
18. THE USE OF REBAR, STEEL STAKES OR STEEL FENCE POSTS FOR STAKING DOWN STRAW OR HAY BALES, OR TO SUPPORT SILT FENCING USED AS AN EROSION CONTROL MEASURE, IS PROHIBITED.
19. THE CLEANING OF CONCRETE DELIVERY TRUCK CHUTES IS RESTRICTED TO APPROVED LOCATIONS ON THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED. ALL CONCRETE WASTE SHALL BE PROPERLY CLEANED UP AND DISPOSED OF AT AN APPROPRIATE LOCATION.
20. CONTRACTOR TO FILE "NOTICE OF TERMINATION" WITH CDPHE ONCE PROJECT IS COMPLETE AND ALL DISTURBED AREAS HAVE BEEN STABILIZED INCLUDING TEMPORARY CMS REMOVED.

ADA NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR ENSURING THAT ALL ACCESSIBLE AREAS ARE BUILT IN ACCORDANCE WITH THE PLANS AND THE AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES (ADAAG).
2. ALL ADA ACCESSIBLE PARKING SHALL BE CONSTRUCTED WITH A MAXIMUM SLOPE OF 2.00% IN ANY DIRECTION.
3. ALL ADA ACCESSIBLE ROUTES SHALL BE CONSTRUCTED WITH MAXIMUM SLOPE OF 2.00% AND A MAXIMUM LONGITUDINAL SLOPE OF 5.00%.
4. ALL ADA MANEUVERING AREAS SHALL BE CONSTRUCTED WITH A MAXIMUM SLOPE OF 2.00% IN ANY DIRECTION.
5. ALL ADA ACCESSIBLE RAMPS SHALL MEET THE ADA REQUIREMENTS PER ADAAG SECTION 4.7 & 4.8.

SEEDING SPECIFICATIONS:

1. SEED QUALITY
ALL BRANDS FURNISHED SHALL BE FREE FROM SUCH NOXIOUS SEEDS AS RUSSIAN OR CANADIAN THISTLE, COURSE FESCUE, EUROPEAN BINDWEED, JOHNSON GRASS, AND LEAFY SPURGE. THE SUB CONTRACTOR SHALL FURNISH TO THE CONTRACTOR A SIGNED STATEMENT CERTIFYING THAT THE SEED FURNISHED IS FROM A LOT THAT HAS BEEN TESTED BY A RECOGNIZED LABORATORY. SEED WHICH HAS BECOME WET, MOLDY, OR OTHERWISE DAMAGED IN TRANSIT OR IN STORAGE WILL NOT BE ACCEPTABLE.
2. MATERIALS
SEED
2.1. SEED TYPE AND AMOUNT OF PURE LIVE SEED (PLS) REQUIRED PER ACRE SHALL BE PER LANDSCAPING PLANS.
2.2. IF SEED AVAILABLE ON THE MARKET DOES NOT MEET THE MINIMUM PURITY AND GERMINATION PERCENTAGES SPECIFIED, THE SUBCONTRACTOR MUST COMPENSATE FOR A LESSER PERCENTAGE OF PURITY OF GERMINATION BY FURNISHING SUFFICIENT ADDITIONAL SEED TO EQUAL THE SPECIFIED PRODUCT. THE TAGS FROM THE SEED MIXES MUST BE SUPPLIED TO THE CONTRACTOR AND FORWARDED TO THE ENGINEER.
MULCH
ALL AREAS SHALL BE SEEDED AND MULCHED WITHIN THIRTY (30) DAYS OF THE DATE THE FINAL PLACEMENT OF FILL MATERIAL. ADDITIONAL TIME MAY BE GRANTED WITH WRITTEN APPROVAL FROM THE EROSION CONTROL INSPECTOR.
3. HAY OR STRAW MULCH: AFTER SEEDING HAS BEEN COMPLETED, A RATE OF 2,000 LBS/ACRE SHALL BE APPLIED UNIFORMLY, CRIMPED IN WITH A CRIMPER OR OTHER APPROVED EQUIPMENT OR OTHERWISE ATTACHED. THE CONTRACTOR MAY ORDER THE EMPLOYMENT OF HAND CRIMPING OPERATIONS ON SUCH AREAS WHERE EXCESSIVELY STEEP SLOPES OF CONFINED AREAS WOULD CAUSE UNSATISFACTORY CRIMPING TO RESULT BY MECHANICAL METHODS OR USE A TACKIFIER OR JUTE NETTING TO ATTACH MULCH. THE SEEDED AREA SHALL BE MULCHED AND THE MULCH ATTACHED WITHIN 24 HOURS AFTER SEEDING. AREAS NOT MULCHED AND ATTACHED WITHIN 24 HOURS AFTER SEEDING MUST BE RESEDED WITH THE SPECIFIED MIX AT THE CONTRACTORS EXPENSE, PRIOR TO MULCHING AND ATTACHING. ON STEEP SLOPES OR OTHER SPECIFIED AREAS AS SHOWN ON THE PLANTING PLAN, WHICH ARE DIFFICULT TO MULCH AND ATTACH BY CONVENTIONAL METHOD, BURLAP OR OTHER BLANKETING MATERIALS PROPERLY ANCHORED AND SECURED MAY BE USED WHEN APPROVED BY THE CITY ENGINEER.
4. WARRANTY
THE CONTRACTOR IS RESPONSIBLE FOR WATERING AND MAINTENANCE UNTIL 90% OF GROWTH IS ACHIEVED. THE ENGINEER SHALL INSPECT THE SEEDED AREA AFTER THE FIRST GROWING SEASON, AND AREAS WITH LESS THAN NINETY PERCENT (90%) GROWTH SHALL BE RESEDED. AN ADDITIONAL ENGINEER INSPECTION AFTER THE SECOND GROWING SEASON SHALL BE MADE TO ENSURE THAT NINETY (90%) COVER HAS BEEN ACHIEVED.

DEWATERING PERMITS:

1. CONTRACTOR TO OBTAIN DEWATERING PERMIT FROM CDPHE PRIOR TO COMMENCING WORK. DISCHARGES SHALL BE MONITORED ACCORDING TO THE CONDITIONS OF THE CDPHE PERMIT.

UTILITIES:

1. CONTRACTOR TO FIELD VERIFY LOCATIONS AND SIZES OF ALL EXISTING UTILITIES BEFORE BEGINNING WORK.
2. THE CONTRACTOR SHALL COORDINATE EXACT LOCATIONS AND SIZES OF ALL UTILITY SERVICE LINE HOOKUPS TO THE BUILDINGS WITH THE MECHANICAL, ELECTRICAL AND PLUMBING PLANS AND SPECIFICATIONS, AND REPORT ANY DISCREPANCIES TO THE ENGINEER AND ARCHITECT PRIOR TO BEGINNING UTILITIES CONSTRUCTION.
3. THE CONTRACTOR SHALL CONSTRUCT THE SANITARY SEWER SERVICE CONNECTIONS IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND SPECIFICATIONS OF THE CITY OF GREELEY.
4. THE CONTRACTOR SHALL CONSTRUCT ALL WATER SERVICE CONNECTIONS IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND SPECIFICATIONS OF THE CITY OF GREELEY.
5. THE CONTRACTOR SHALL CONSTRUCT ALL ELECTRIC, GAS, TELEPHONE, AND CABLE TELEVISION SERVICES IN ACCORDANCE WITH THE APPLICABLE STANDARDS AND SPECIFICATIONS OF THE UTILITY PROVIDER.
6. ALL EXISTING SEWERS, PIPING AND UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES. GIVE NOTICE TO ALL UTILITY COMPANIES REGARDING DESTRUCTION AND REMOVAL OF ALL SERVICE LINES AND CAP ALL LINES BEFORE PROCEEDING WITH THE WORK. UTILITIES DETERMINED TO BE ABANDONED AND LEFT IN PLACE SHALL BE GROUTED IF UNDER BUILDING.
7. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED OR RELOCATED SHALL BE COORDINATED WITH THE AFFECTED UTILITY COMPANY. ADEQUATE TIME SHALL BE PROVIDED FOR RELOCATION AND CLOSE COORDINATION WITH THE UTILITY COMPANY IS NECESSARY TO PROVIDE A SMOOTH TRANSITION IN UTILITY SERVICES.
8. UTILITY TRENCHES ARE TO BE SLOPED OR BRACED AND SHEETED AS NECESSARY FOR THE SAFETY OF THE WORKMEN AND THE PROTECTION OF OTHER UTILITIES IN COMPLIANCE WITH ALL APPLICABLE LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. CONTRACTOR TO SET AND ADJUST ALL MANHOLE COVERS, INLET GRATES, WATER VALVES, CLEANOUTS, AND ANY OTHER ACCESS COVERS TO FINISHED PAVEMENT SURFACE OR FINISHED GRADE.

GEOTECHNICAL REPORT NOTE:

1. CONTRACTOR TO OBTAIN AND READ THE GEOTECHNICAL REPORT (AND ALL ADDENDUMS) PREPARED BY OLSSON FOR THIS PROJECT. IN CASE OF ANY CONFLICT WITH THESE PLANS AND SITEWORK SPECIFICATIONS REGARDING PAVING AND EARTHWORK, THE GEOTECHNICAL REPORT WILL GOVERN. ALL PAVING AND EARTH WORK SHALL CONFORM TO THE RECOMMENDATIONS OF THIS REPORT.
2. REFERENCE POINTS FOR STRUCTURES ARE AS FOLLOWS:
CENTER OF MANHOLES/ DRAINAGE BASINS
CENTER OF INLET FACE AT FLOWLINE FOR CURB INLETS
CENTER OF INLET FACE FOR GRATE INLETS
3. THE CONDUIT LAYING SHALL BEGIN AT THE DOWNSTREAM END OF THE CONDUIT LINE. THE LOWER SEGMENT OF THE CONDUIT SHALL BE IN CONTACT WITH THE PREPARED BEDDING THROUGHOUT ITS FULL LENGTH BELL OR GROOVE ENDS OF CONCRETE PIPE CONDUITS AND OUTSIDE CIRCUMFERENTIAL LAPS OF METAL OR PLASTIC PIPE SHALL BE PLACED FACING UPSTREAM. SEE CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION SECTION, SECTION 603.06 FOR FURTHER EXPLANATION.
4. WHEN JOINING CONDUITS, CONCRETE SECTIONS SHALL BE JOINED IN SUCH A MANNER THAT THE ENDS ARE FULLY ENTERED AND THE INNER SURFACES ARE REASONABLY FLUSH AND EVEN. RUBBER GASKETS SHALL BE USED ON ALL CONDUIT JOINTS AND SHALL CONFORM TO CDOT STANDARD 705.03. SEE CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, SECTION 603.06 & 603.07 FOR FURTHER EXPLANATION.
5. CONTRACTOR SHALL COORDINATE TIE-INS OF ROOF DOWNSPOUTS WITH MECHANICAL/ELECTRICAL/PLUMBING PLANS.

REVISIONS

NO.	DESCRIPTION	DATE	BY

DRAWN

BAMG

CHECKED

JFS

DESIGNED

BAMG

FILENAME

0005_COVER & NOTES

COLORADO LICENSE
SANTHAN 7-2
PENDING APPROVAL
NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER

ZIGGI'S SEVERANCE SITE PLAN

GENERAL NOTES

TST

TST, INC.

CONSULTING ENGINEERS

748 Whalers Way

Suite 200 Fort Collins

Colorado 80525

Phone: 970.226.0557

JOB NO.

1076.0005.00

SCALE

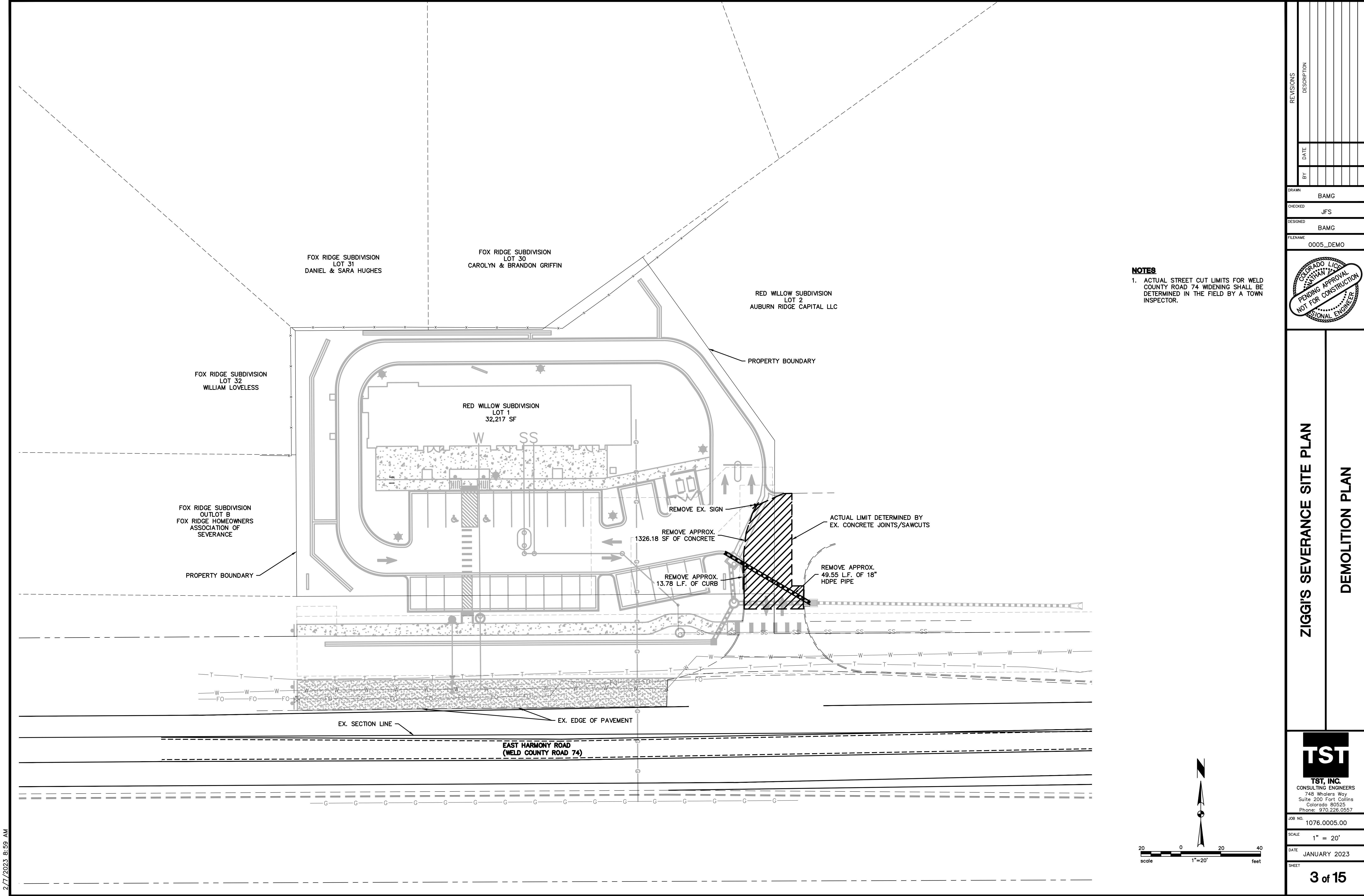
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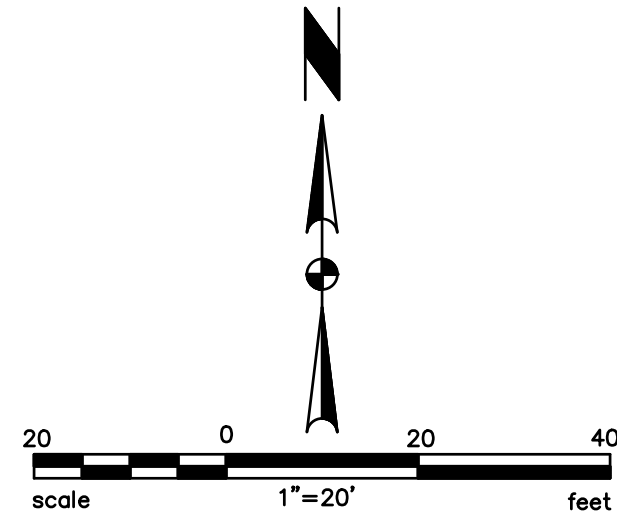
JANUARY 2023

SHEET

2 of 15



2/7/2023 8:59 AM



- NOTES**
1. ACTUAL STREET CUT LIMITS FOR WELD COUNTY ROAD 74 WIDENING SHALL BE DETERMINED IN THE FIELD BY A TOWN INSPECTOR.

REVISIONS	
DATE	DESCRIPTION

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CHECKED	JFS
DESIGNED	BAMG
FILENAME	0005_DEMO

NOTES

1. ACTUAL STREET CUT LIMITS FOR WELD COUNTY ROAD 74 WIDENING SHALL BE DETERMINED IN THE FIELD BY A TOWN INSPECTOR.

ZIGGI'S SEVERANCE SITE PLAN

DEMOLITION PLAN

TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1076.0005.00

SCALE 1" = 20'

DATE JANUARY 2023

SHEET

3 of 15

LAND USE STATISTICS			
TYPE	SQ FT	AC	%
BUILDING COVERAGE	4,036	0.09	12.5%
PARKING & DRIVES	15,260	0.35	47.4%
LANDSCAPE AREA	10,184	0.23	31.6%
SIDEWALK & PATHWAYS	2,737	0.06	8.5%
TOTAL SITE AREA	32,217	0.74	100.0%

PARKING COUNT	
Item	Count
TOTAL REQUIRED SPACES	25
RETAIL STORE (1 SP / 200 SF)	20
ADA SPACES (VAN ACCESSIBLE)	2
EMPLOYEE PARKING (1 SP / 2 EMPLOYEES)	3
TOTAL PROVIDED	27
STANDARD SPACES	18
ADA SPACES (VAN ACCESSIBLE)	2
EMPLOYEE PARKING (1 SP / 2 EMPLOYEES)	7

REVISIONS	
DATE	DESCRIPTION

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FILENAME	0005_SITE PLAN



ZIGGI'S SEVERANCE SITE PLAN

SITE PLAN

TST
TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

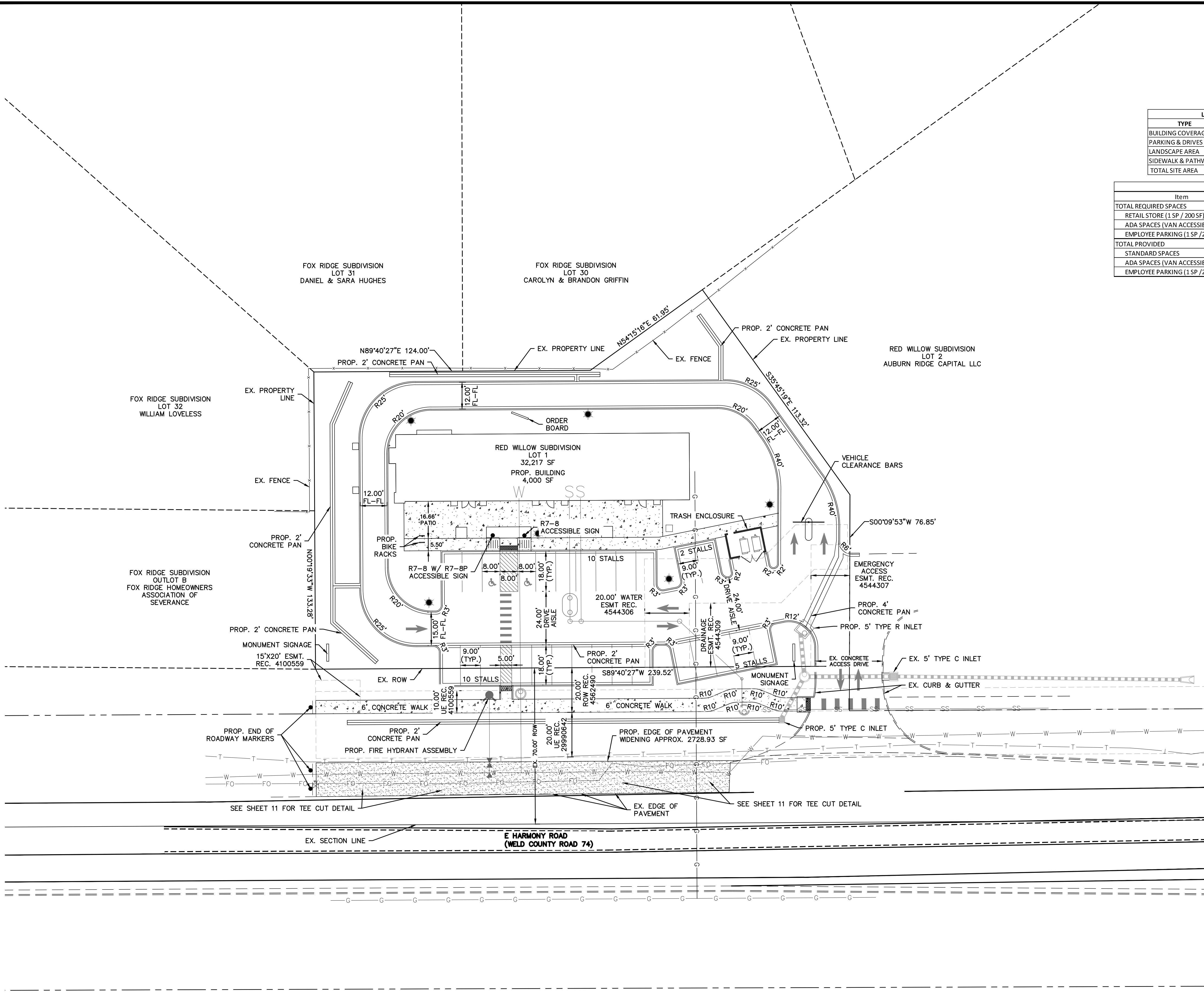
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SCALE 1" = 20'

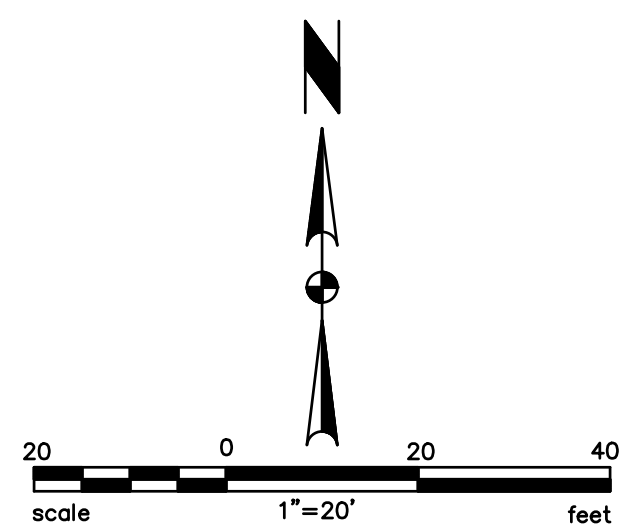
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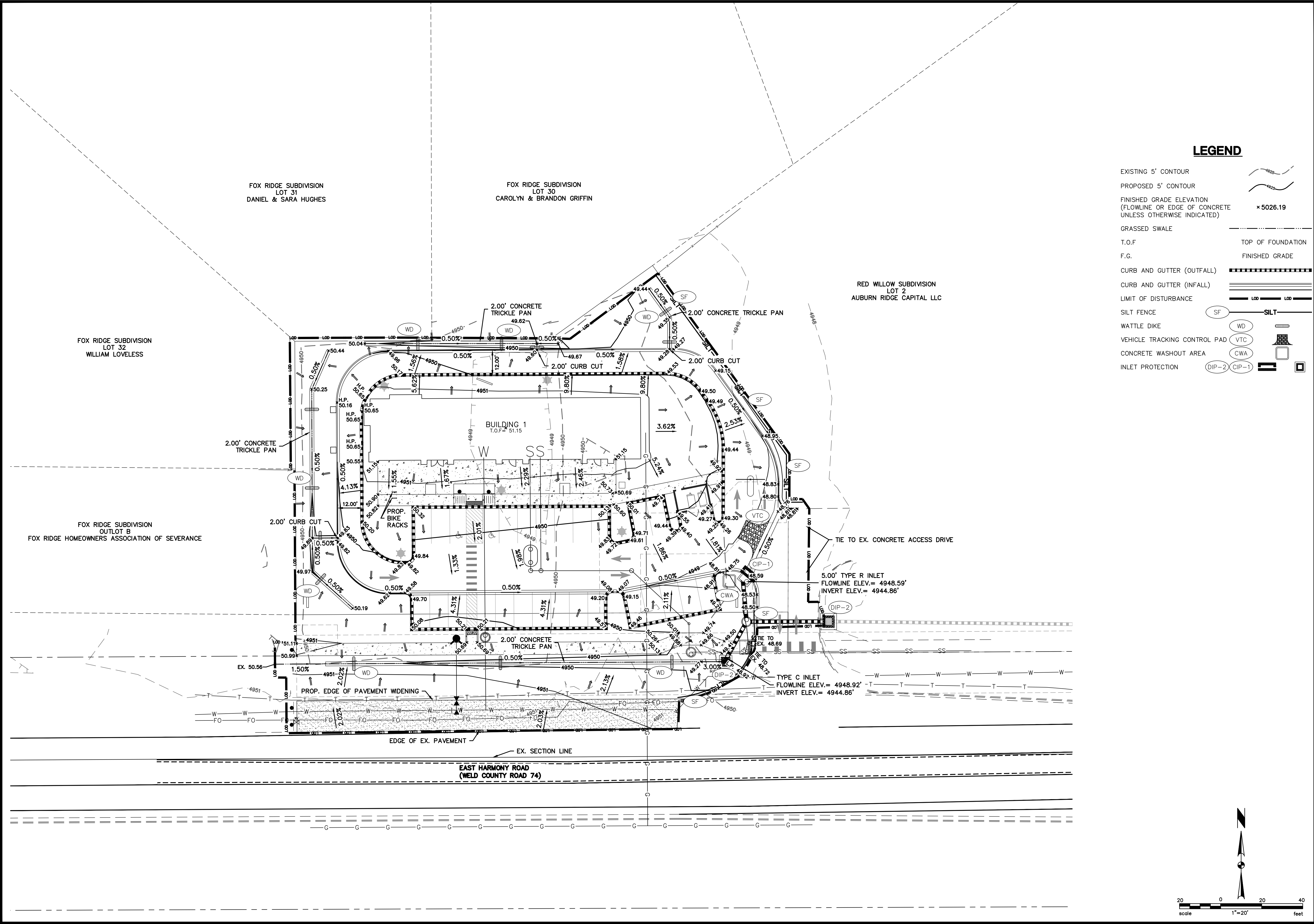
4 of 15



- NOTES**
1. SITE PLAN APPROVAL NOT AFFECTING, MODIFYING, OR ABROGATING IN ANY WAY THE TOWN'S AUTHORITY TO REMOVE OR TO ORDER THE REMOVAL IF THE ENCROACHMENTS OR REGULATING THE ROW FOR THE PUBLIC HEALTH, SAFETY, AND WELFARE
 2. OTHER GENERAL CONDITIONS, SUCH AS THE USE OF THE ROW FOR PLACEMENT OF THE PARKING STALLS DOES NOT CREATE A PROPERTY RIGHT OR OWNERSHIP INTEREST OF ANY KIND IN AND TO THE ROW, THAT OWNER MUST MAINTAIN THE ENCROACHMENTS, AND THAT LOT 2 OWNER SHALL ASSUME FULL RESPONSIBILITY FOR ANY AND ALL DAMAGES INCURRED BY TOWN OR TO TOWN FACILITIES WITHIN ROW ATTRIBUTABLE TO THE ENCROACHMENTS OR RESULTING FROM THE ENCROACHMENTS



2/7/2023 9:00 AM



LEGEND

- EXISTING 5' CONTOUR
PROPOSED 5' CONTOUR
FINISHED GRADE ELEVATION (FLOWLINE OR EDGE OF CONCRETE UNLESS OTHERWISE INDICATED) *5026.19
GRASSED SWALE
T.O.F
F.G.
CURB AND GUTTER (OUTFALL)
CURB AND GUTTER (INFALL)
LIMIT OF DISTURBANCE
SILT FENCE
WATTLE DIKE
VEHICLE TRACKING CONTROL PAD
CONCRETE WASHOUT AREA
INLET PROTECTION
- TOP OF FOUNDATION
FINISHED GRADE
LOD LOD
SF
WD
VTC
CWA
DIP-2 CIP-1
SILT

REVISIONS	
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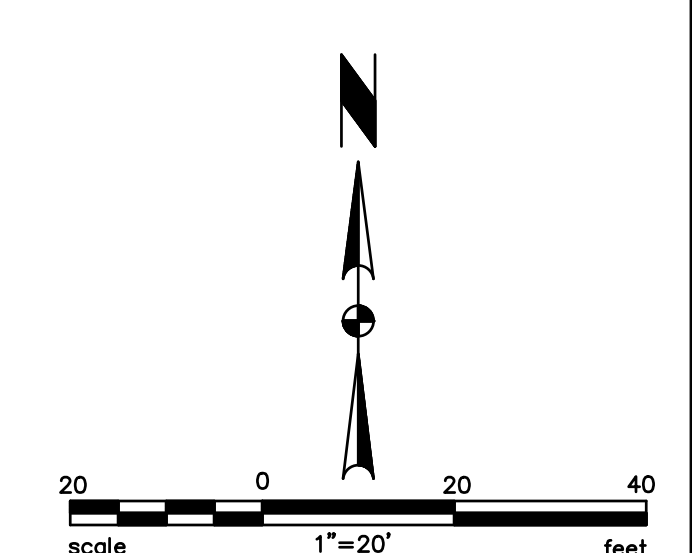
COLORADO LICENSE
NATHAN A. ZIGGI
PENDING APPROVAL
NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER

ZIGGI'S SEVERANCE SITE PLAN

GRADING & EROSION PLAN

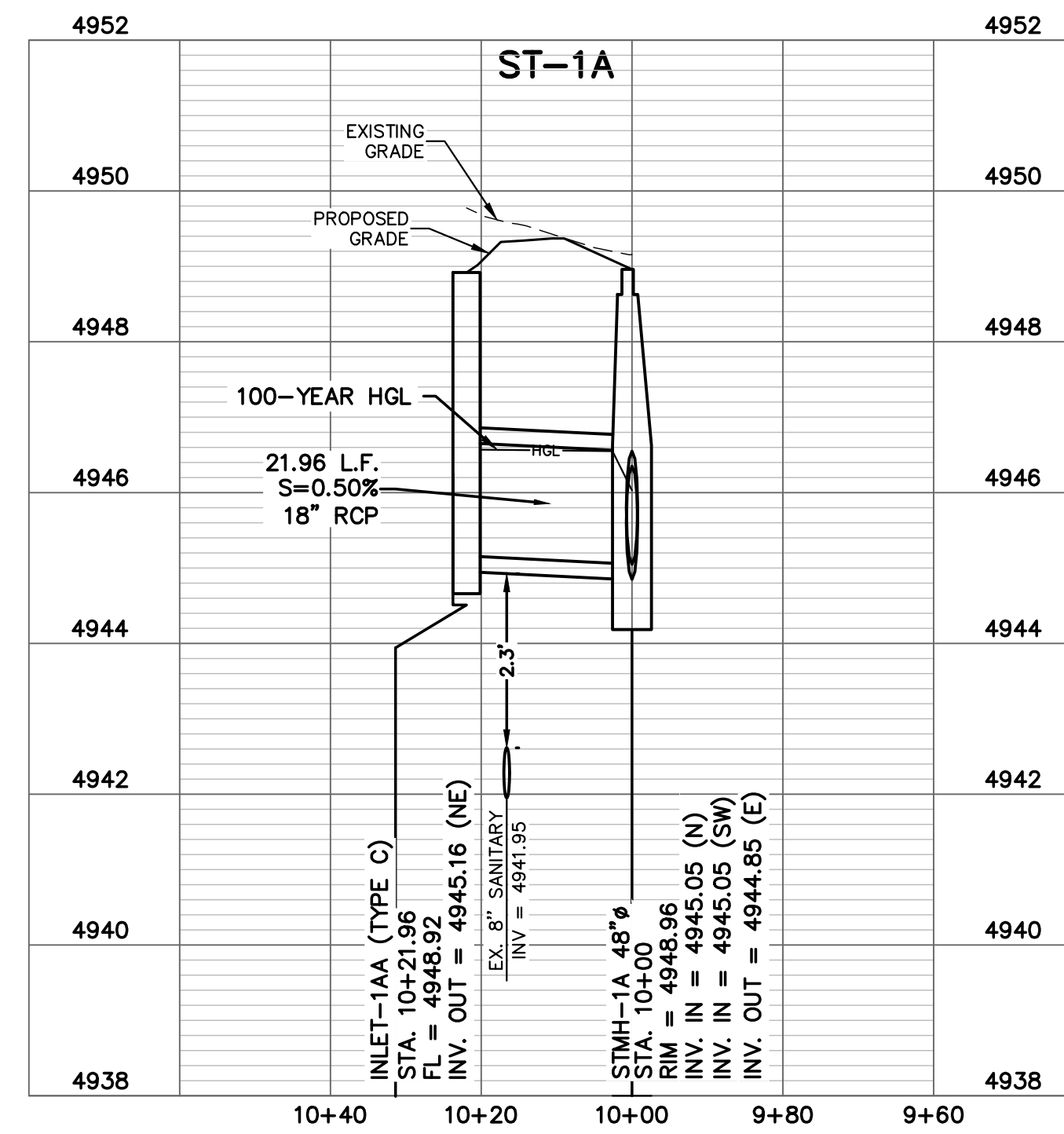
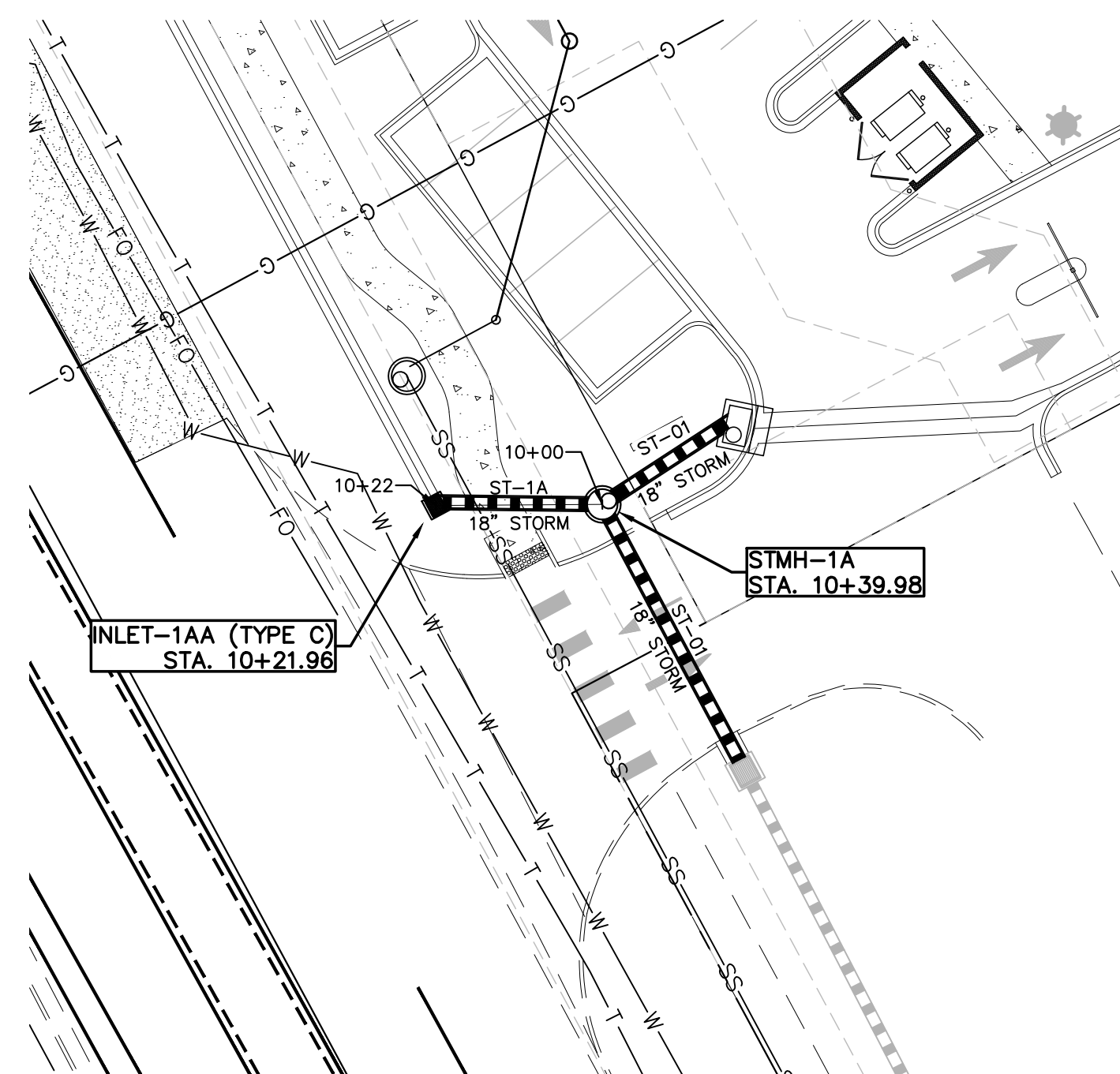
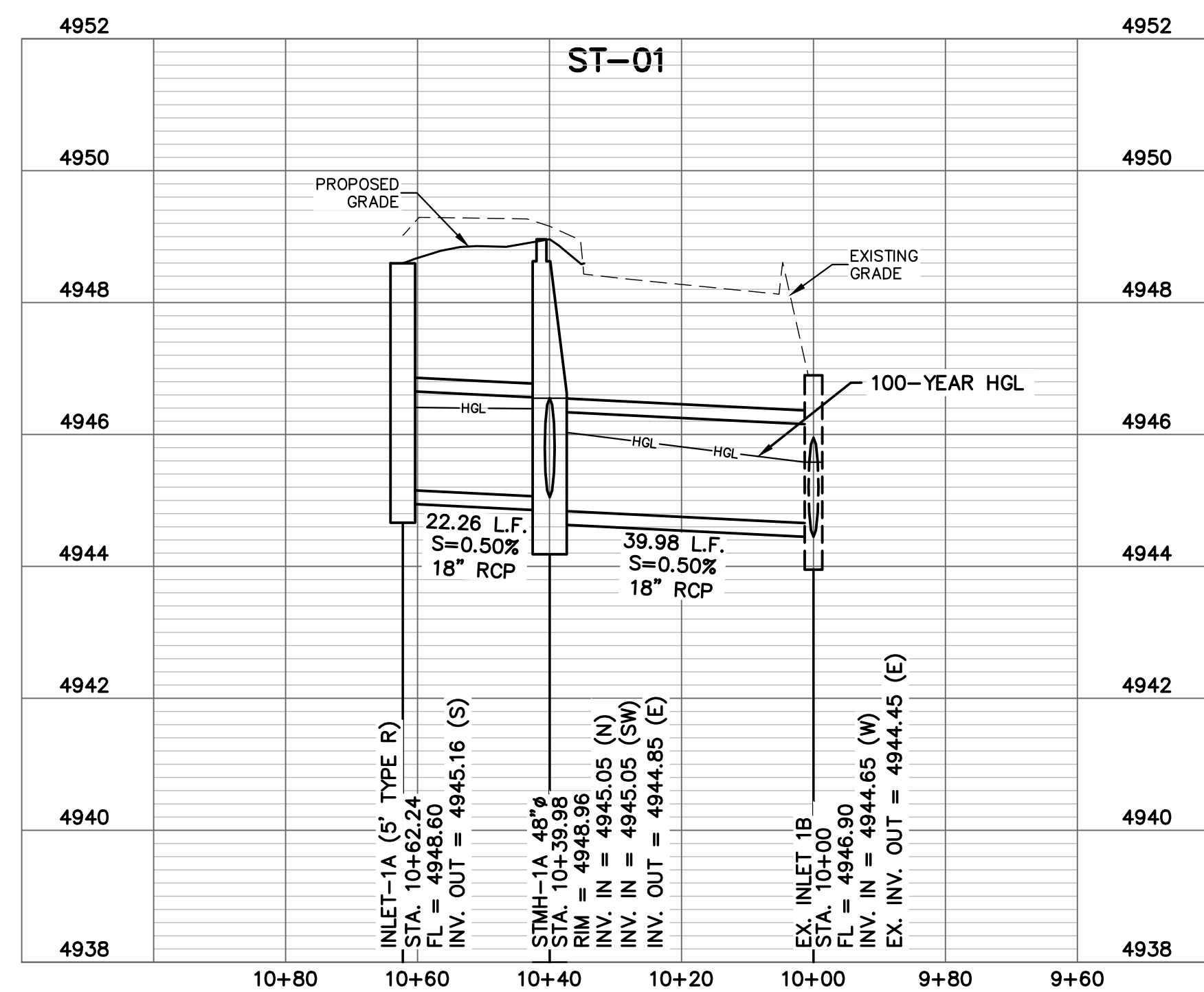
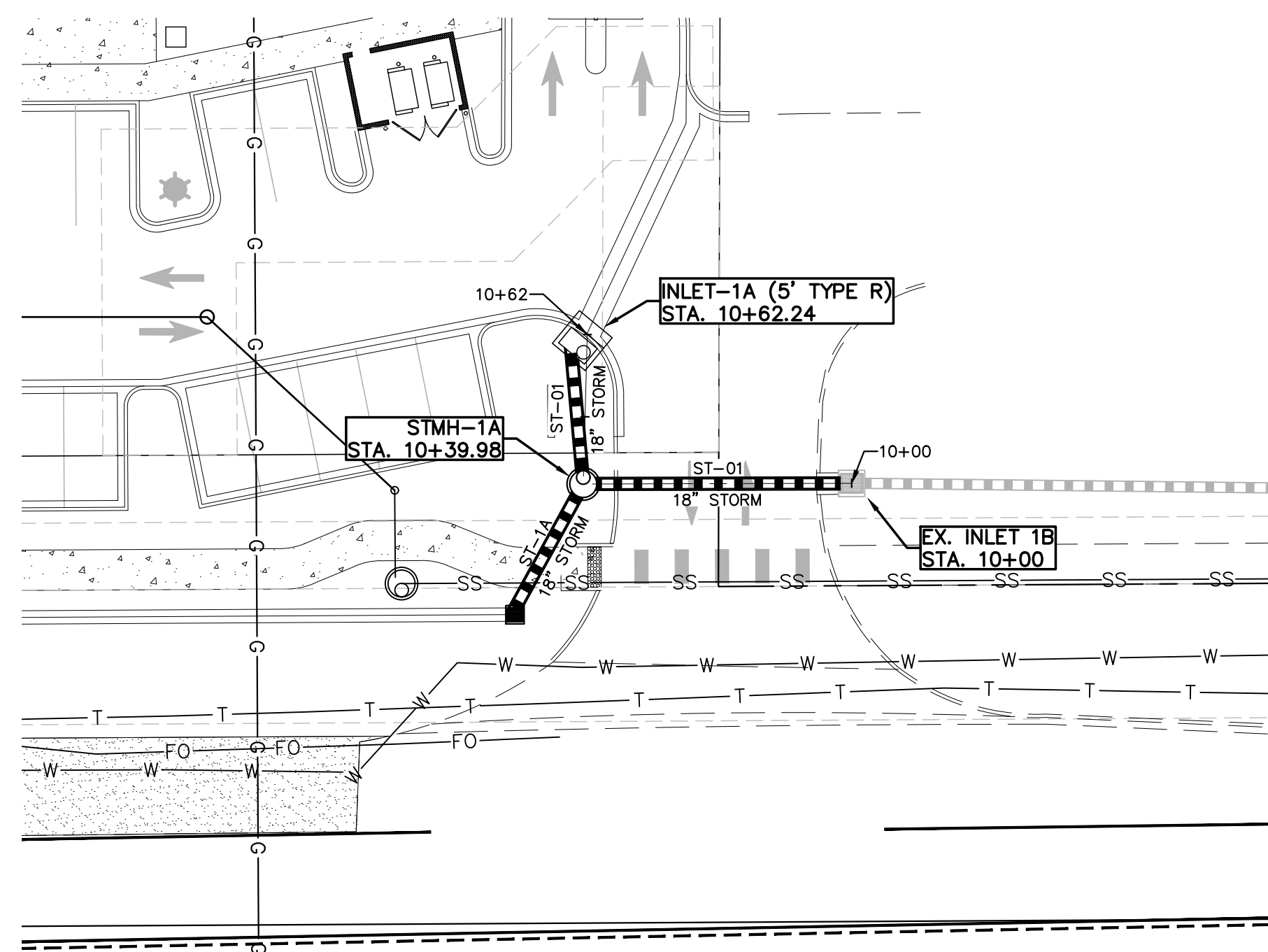
TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1076.0005.00
SCALE 1" = 20'
DATE JANUARY 2023
SHEET 5 of 15

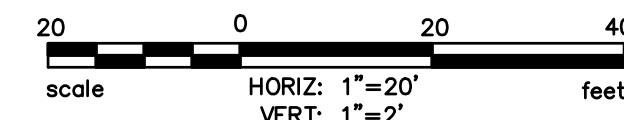


UTILITY PLAN

The logo for TST, INC. features the letters "TST" in a large, bold, black sans-serif font, enclosed within a white square. Below the square, the text "TST, INC." is written in a bold, black sans-serif font. Underneath the company name, the address "749 Whalers Way" is listed, followed by "Suite 200 Fort Collins" and "Colorado 80525". The phone number "Phone: 970.226.0557" is provided at the bottom of the contact information. Below the address, there is a horizontal line, and then the text "JOB NO." followed by "1076.0005.00". Another horizontal line follows, and then the text "SCALE" followed by "1\" = 20'". A third horizontal line follows, and then the text "DATE" followed by "JANUARY 2023". A final horizontal line follows, and then the text "SHEET" followed by "6 of 15".



- ## NOTES
1. STATIONS ARE BASED ON CENTER OF MANHOLE, AND INLETS. THEREFORE DISTANCES SHOWN ON PLANS ARE APPROXIMATE AND COULD VARY DUE TO VERTICAL ALIGNMENT AND STRUCTURE WIDTHS.
 2. NO TREES SHALL BE PLANTED WITHIN TEN (10) FEET OF ANY NEW STORM SEWER PIPES.
 3. CONTRACTOR SHALL VERIFY HORIZONTAL AND VERTICAL LOCATIONS OF EXISTING STORM SEWER POINTS OF CONNECTION PRIOR TO CONSTRUCTION OF ANY PROPOSED STORM SEWER.
 4. CONTRACTOR SHALL COORDINATE GAS, ELECTRIC, AND COMMUNICATIONS SERVICES WITH UTILITY PROVIDERS. COORDINATE WITH PROPOSED SITE IMPROVEMENTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES.
 5. THE MINIMUM CLEARANCE BETWEEN STORM DRAIN AND WATER, IN OPEN CUTS, EITHER ABOVE OF BELOW, SHALL BE EIGHTEEN (18) INCHES. IN ADDITION, WHEN A WATER LINE LIES BELOW STORM LINE, OR WITHIN TWENTY-FOUR (24) INCHES, EXTERNAL SEALING BANDS SHALL BE INSTALLED OVER THE STORM LINE. SHALL BE INSTALLED SO THAT A JOINT IS NOT DIRECTLY ABOVE OF BELOW THE WATER MAIN.



REVISIONS			
BY	DATE	DESCRIPTION	
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DESIGNED		BAMG	
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ZIGGI'S SEVERANCE SITE PLAN		STORM PLAN & PROFILES	
TST, INC. CONSULTING ENGINEERS 748 Whalers Way Suite 200 Fort Collins Colorado 80525 Phone: 970.228.0557		JOB NO. 1076.0005.00	
SCALE		1" = 20'	
DATE		JANUARY 2023	
SHEET		7 of 15	

STANDARD VEHICLE

Dimension in feet

A	B [®]	C [®]	D	E	F*	G*
0"	8	23	8	23	20	12
30"	8.5	20	17.4	17	20	15
45"	8.5	20	20.2	12	20	15
60"	9	19	21	10.4	24	20
90"	9	19	19	9	24	NA

COMPACT VEHICLE

Dimension in feet

A	B	C	D	E	F*	G*
0"	7.5	19	7.5	19	20	12
30"	7.5	16.5	14.8	15	20	15
45"	7.5	16.5	17	10.6	20	15
60"	8	16	17.9	9.2	24	20
90"	8	15	15	8	24	NA

* UNDER SPECIAL CONDITIONS, THESE DIMENSIONS COULD BE VARIED WITH THE LOCAL ENTITY'S APPROVAL.

① STALL LENGTH (ONLY) CAN BE REDUCED BY 2 FT. WHEN OVERHANGING IS PROVIDED.

② FOR HANDICAP SPACES, WIDTH SHALL BE 13 FT. WITH RAMP ACCESS TO WALKS.

A – ANGEL OF PARKING

B – STALL WIDTH

C – STALL LENGTH

D – STALL DEPTH

E – CURB LENGTH

F – TOW-WAY DRIVE WIDTH OR DOUBLE LOADED DRIVE WIDTH

G – ONE-WAY DRIVE WIDTH OR SINGLE LOADED DRIVE WIDTH

City of Greeley Colorado

PARKING AREA DIMENSIONS

DETAIL NO. S-49

DATE: JULY, 2015

SCALE: N.T.S.

INSTALLATION IN ROUGH CUT STREET & OPEN FIELD

INSTALLATION IN EXISTING STREET

SEE NOTE 2

BACKFILL ZONE

SLOPE AS REQUIRED BY OSHA OR GOVERNING AGENCY

TRENCH WIDTH

12" MIN 18" MAX

PIPE O.D.

INSULATION BOARD AS REQUIRED BY CITY INSPECTOR AND/OR AS SHOWN ON CONSTRUCTION DRAWINGS (SEE NOTE 7)

6" MIN

TRACER WIRE (SEE NOTE 8)

PIPE

6" MIN

6" MIN

STABILIZATION MATERIAL DEPTH AS REQUIRED TO OBTAIN A STABLE SUBGRADE

INSTALL GEOTEXTILE BETWEEN PIPE BEDDING AND STABILIZATION MATERIAL

DEPTH VARIES

NOTES:

1. REFER TO WATER AND SEWER DEPARTMENT CONSTRUCTION SPECIFICATIONS FOR STABILIZATION, GEOTEXTILE, BEDDING, BACKFILL MATERIAL, COMPACTION, AND MARKING TAPE REQUIREMENTS. FOR ANY CONFLICT BETWEEN WATER AND SEWER AND PUBLIC WORKS BACKFILL MATERIAL SPECIFICATIONS AND COMPACTION REQUIREMENTS, THE MORE STRINGENT SPECIFICATION SHALL APPLY.

2. REFER TO STREETS DETAIL S-31 "EXISTING STREET PAVEMENT PATCH DETAIL FOR ASPHALT & CONCRETE", CURRENT VERSION, FOR STREET CUT REQUIREMENTS.

3. AN OVER EXCAVATED TRENCH SHALL BE BACKFILLED AND COMPACTED WITH STABILIZATION OR BEDDING MATERIALS (AS PER SPECIFICATIONS) UNDER THE DIRECTION OF THE CITY.

4. PIPELINE SHALL BE INSTALLED IN A PROPOSED FILL AREA PRIOR TO AREA BEING COMPLETELY FILLED TO PROPOSED FINAL GRADES AND COMPACTED PER THE CITY OF GREELEY SPECIFICATIONS.

5. BACKFILLING AND COMPACTION OPERATIONS REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE WATER & SEWER CONSTRUCTION SPECIFICATIONS AND DESIGN CRITERIA. REFER TO WATER AND SEWER EXCAVATION AND FILL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

6. TRENCHES SHALL BE SHORED, BRACED, OR SHEETED PER OSHA REQUIREMENT AND AS NECESSARY FOR THE SAFETY AND PROTECTION OF PERSONNEL AND OTHER UTILITIES.

7. INSULATION BOARD SHALL BE 2" THICK MINIMUM, CONSISTING OF TWO BOARDS (1" MINIMUM PER BOARD) WITH OFFSET JOINTS PLACED ACROSS FULL TRENCH WIDTH, REFER TO LATEST REVISION OF WATER & SEWER SPECIFICATIONS.

8. INSTALL TRACER WIRE ACCORDING TO W&S CONSTRUCTION SPECIFICATIONS AND W&S UTILITY LOCATING ("UL") DETAILS, LATEST REVISION OF EACH.

City of Greeley Colorado

TRENCH CROSS SECTION

DETAIL WS-2

DATE: JANUARY 2021

SCALE: N.T.S.

COMPACTED BACKFILL (SEE NOTES BELOW)

WIDTH – 18" MIN. O.D. + 24" MAX. O.D. + 12" MIN.

6" OR AS REQUIRED BY UTILITY

LIMITS OF BEDDING (AS REQUIRED BY APPLICABLE UTILITY SPECIFICATION)

6"

12" OR AS REQUIRED TO OBTAIN STABILIZATION

WARNING TAPE WILL BE INSTALLED 18" ABOVE PIPE (IF REQUIRED BY APPLICABLE UTILITY)

FILTER FABRIC IF STABILIZATION MATERIAL IS REQUIRED

STABILIZATION MATERIAL

NOTES:

1. RIGHT-OF-WAY AND EASEMENT AREAS SHALL BE GRADED (CUT AND FILL) TO SUBGRADE (+/-0.5') PRIOR TO AND AFTER UTILITY INSTALLATION.

2. BACKFILL WITHIN PUBLIC RIGHT-OF-WAY AND IN EASEMENTS WITHIN 20 FEET OF RIGHT-OF-WAY SHALL BE COMPACTED TO 95% WITHIN +/- 2% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY AASHTO T99 DENSITY. TRENCHES IN EASEMENTS BEYOND 20 FEET OF RIGHT-OF-WAY SHALL BE COMPACTED TO 90%. ALL TRENCHES SHALL BE COMPACTED BY A METHOD APPROVED BY THE CITY.

3. TRENCH EXCAVATION SHALL COMPLY TO ALL OSHA STANDARDS.

4. FILTER FABRIC IS REQUIRED IF STABILIZATION MATERIAL IS USED. THE FABRIC SHALL BE INSTALLED AS SHOWN IN THE DETAIL.

5. IF NOT SPECIFIED BY APPLICABLE UTILITY, AN APPROVED GRADE OF SAND BEDDING SHALL BE INSTALLED TO SPRINGLINE.

City of Greeley Colorado

NEW DEVELOPMENT TRENCH EXCAVATION & BACKFILL DETAIL

DETAIL NO. S-30

DATE: JULY, 2015

SCALE: N.T.S.

LENGTH AS REQUIRED PER DESIGN (SEE NOTE 10)

ONE-4 1/2" PUMPER NOZZLE CONNECTION (FACING PUBLIC ROW OR REQUIRED FIRE ACCESS ROAD)

BURIED VALVE

TRACER WIRE (SEE NOTE 9)

DO NOT BLOCK HYDRANT DRAIN

FINISHED GRADE

18"-21"

12" MIN 18" MAX

TRACER WIRE TEST STATION (SEE NOTE 9)

6" MAIN VALVE IN STREET VALVE BOX PER SPECIFICATION

ANCHORING SWIVEL TEE

WATER MAIN

UNDISTURBED SOIL

THRUST BLOCK

2-#4 ANCHOR REBAR (REFER TO THRUST BLOCK DETAILS)

1 CU YD MIN 1 1/2" DRAIN GRAVEL STABILIZATION ROCK

UNDISTURBED SOIL

THRUST BLOCK

PRECAST CONCRETE BLOCK

NOTES:

1. MINIMUM DEPTH OF BURY 5'-6" FROM FINISHED GRADE TO TOP OF PIPE.

2. PROVIDE POLYETHYLENE BOND BREAKER BETWEEN ALL PIPE/FITTINGS AND POURED CONCRETE.

3. FIRE HYDRANTS MUST BE PURCHASED FROM W&S OPERATIONS WITH A MINIMUM 48 HOUR NOTICE. CALL TO ORDER 970-350-9320.

4. OPERATING NUT ON BURIED VALVES SHALL BE BETWEEN 4' & 6' BELOW FINISHED GRADE.

5. FIRE HYDRANT EXTENSION MAY ONLY BE SINGLE 6" OR SINGLE 12" EXT. (MAX) PER WATER & SEWER SPECIFICATIONS.

6. ALL BURIED VALVES, FITTINGS, AND APPURTENANCES SHALL BE RESTRAINED AND INSTALLED PER W&S SPECIFICATIONS, LATEST REVISION.

7. EITHER ZINC-COATED D.I.P. OR PVC IS ACCEPTABLE FOR HYDRANT LATERAL PIPE MATERIAL.

8. BEDDING AND BACKFILL SHALL BE PLACED PER W&S SPECIFICATIONS.

9. INSTALL TEST STATION AND TRACER WIRE ACCORDING TO WATER & SEWER SPECIFICATIONS AND W&S UTILITY LOCATING ("UL") STANDARD DETAILS, LATEST REVISION OF EACH.

10. HYDRANT DISTANCE FROM MAIN SHALL BE SUCH THAT THE MINIMUM FIRE FLOW PRESSURE MEETS WATER & SEWER DESIGN CRITERIA, LATEST REVISION. FOR AN INITIAL PRESSURE OF 40 PSI, A MINIMUM OF 20 PSI AVAILABLE DURING HYDRANT FLOW OF 1500 GPM, AND THE REQUIRED 6 INCH HYDRANT LATERAL, THE MAXIMUM DISTANCE A HYDRANT MAY BE FROM THE MAIN SHALL NOT EXCEED 150 FT UNLESS FURTHER HYDRAULIC ANALYSIS IS PERFORMED UNDER THE DIRECTION OF THE CITY OF GREELEY WATER & SEWER DEPT.

City of Greeley Colorado

FIRE HYDRANT ASSEMBLY

DETAIL NO. W-1

DATE: JANUARY 2021

SCALE: N.T.S.

EXISTING

CONCRETE COLLAR

12"

WATER

LID

PAVEMENT

FINISHED GRADE

PAVEMENT

CONCRETE COLLAR (12" MINIMUM THICKNESS)

LIMITS OF EXCAVATION

12"

LID

"D"

BASE COURSE OR FLOWABLE FILL

VALVE BOX

#4 CIRCULAR REBAR 3" FROM TOP OF COLLAR

COMPACTED SUBGRADE (SEE SPECIFICATIONS)

NOTES:

1. "D" = 1/4" FOR HOT MIX ASPHALT PAVEMENT OVERLAYS, SURFACE TREATMENTS, PAVEMENT RECONSTRUCTION OR NEW CONSTRUCTION.

2. "D" = 1/4" FOR CONCRETE STREETS.

3. VALVE BOX MUST BE PLUMB AND CENTERED OVER THE VALVE NUT.

4. THIS DETAIL APPLIES TO BOTH ASPHALT AND CONCRETE STREETS.

City of Greeley Colorado

WATER VALVE DETAIL FOR RAISING TO FINISHED GRADE

DETAIL NO. S-33

DATE: JULY, 2015

SCALE: N.T.S.

PROPER UTILITY IDENTIFICATION ON MANHOLE COVER (WATER, SEWER, & IRRIGATION)

1 1/2"

1"

1/2"

4 1/2"

3/4"

PICKHOLE

SECTION A-A A PICK OPENING

NOTES:

A. ALL RINGS SHALL BE A MAXIMUM EIGHT-INCH (8") IN HEIGHT

B. STANDARD IRON RING AND COVERS SHALL BE HS-20 LOADING CAPABLE GRAY IRON CONFORMING TO ASTM A48 CLASS 30SB, WITH A BLACK BITUMINOUS FINISH.

1. THE "PROPER UTILITY" DESIGNATION SHALL BE CAST IN THE COVER (WATER, SEWER, NON-POTABLE).

2. HORIZONTAL BEARING SURFACES OF ALL RINGS AND COVERS SHALL BE MACHINED TO ELIMINATE ANY ROCKING ACTION OR NON-UNIFORM BEARING.

3. PICK-HOLE SHALL BE ONE AND ONE-HALF INCH (1 1/2") WIDE BY ONE-HALF INCH (1/2") DEEP.

4. ACCEPTABLE RINGS AND COVERS ARE:
a. CASTINGS, INC – MH-250-24 BOLT DOWN C.I. WITH RUBBER GASKET.
b. OR APPROVED EQUIVALENT

C. COVERS SHALL BE NON-PERFORATED CHECKER PATTERN WITH MAXIMUM 1/8" "RAISED PATTERN IN NON-PEDESTRIAN TRAFFIC AREAS AND NON-PERFORATED, NON-SKID PATTERN COMPLYING WITH AMERICAN WITH DISABILITIES ACT (ADA) REQUIREMENTS IN PEDESTRIAN TRAFFIC AREAS.

1. THE "PROPER UTILITY" DESIGNATION SHALL BE CAST IN THE COVER (WATER, SEWER, NON-POTABLE).

2. RING AND COVER SHALL BE HS-20 TRAFFIC RATED AND SHALL NOT ROCK UNDER TRAFFIC.

3. ACCEPTABLE COVERS ARE:
a. CASTINGS, INC – MH-310-24 BOLT DOWN C.I.
b. OR APPROVED EQUIVALENT

D. MANHOLE COVERS LOCATED WITHIN DESIGNATED 100-YEAR FLOODPLAINS AND AREAS SUBJECT TO FREQUENT WATER INUNDATION SHALL BE THE NON PERFORATED, BOLT DOWN, & GASKETED COVER.

1. RING AND COVERS SHALL BE HS-20 LOAD CAPABLE, GRAY IRON CONFORMING TO ASTM A48 CLASS 30, WITH BLACK COAT FINISH.

2. THE "PROPER UTILITY" DESIGNATION SHALL BE CAST IN THE COVER (WATER, WASTEWATER, NON-POTABLE).

3. ACCEPTABLE MANUFACTURERS ARE:
a. PAMREX
b. REXUS
c. OR APPROVED EQUIVALENT

SEE UTILITY PLANS FOR SERVICE LOCATIONS

City of Greeley Colorado

TYPICAL MANHOLE COVER DETAIL

DETAIL WS-4

DATE: JANUARY 2021

SCALE: N.T.S.

TAPPING SADDLE:

DIRECT TAP:

ELEVATION VIEW

TYPE OF PIPE AND SIZE OF TAP

PIPE SIZE	CAST IRON				DUCTILE IRON				PVC C-900			
	3/4"	1"	1 1/2"	2"	3" & 4"	3/4"	1"	1 1/2"	2"	3" & 4"	< 2"	> 2"
4"	DT	S	NO	NO	TSV	S	S	NO	NO	TSV	S	TSV
6"	DT	DT	S	S	TSV	DT	S	S	S	TSV	S	TSV
8"	DT	DT	S	S	TSV	DT	DT	S	S	TSV	S	TSV
12"	DT	DT	S	S	TSV	DT	DT	S	S	TSV	S	TSV
16"	DT	DT	S	S	TSV	DT	DT	S	S	TSV	N/A	N/A

"S" – TAPPING SADDLE REQUIRED, ALL SADDLES SHALL HAVE AWWA TAPER THREADS.
"DT" – DIRECT TAP ALLOWED.
"NO" – NO TAP PERMITTED WITH OR WITHOUT A SADDLE, A TEE CONNECTION MAY BE PERMITTED IF SPECIFICALLY AUTHORIZED BY THE WATER DEPARTMENT.
"TSV" – TAPPING SLEEVE AND VALVE REQUIRED.
"N/A" – NOT APPLICABLE.

NOTES:

1. REFERENCE CITY OF GREELEY, WATER AND SEWER CONSTRUCTION SPECIFICATIONS, LATEST REVISION, FOR TAPPING SADDLE SPECIFICATIONS.

2. EXISTING STEEL MAINS, TWELVE INCHES (12") IN DIAMETER OR LESS, SHALL BE TAPPED USING A CITY ACCEPTED TAPPING SADDLE.

3. ALL BURIED PIPE, FITTINGS, VALVES, AND APPURTENANCES SHALL BE RESTRAINED AND INSTALLED PER CITY OF GREELEY WATER & SEWER SPECIFICATIONS, LATEST REVISION.

4. INSTALL TRACER WIRE ACCORDING TO CITY OF GREELEY WATER & SEWER SPECIFICATIONS AND W&S UTILITY LOCATING ("UL") STANDARD DETAILS, LATEST REVISION OF EACH.

5. REFER TO CITY OF GREELEY WATER AND SEWER SPECIFICATIONS, LATEST REVISION, FOR PRODUCT AND MFR SPECIFICATIONS.

City of Greeley Colorado

WATER SERVICE CONNECTION

DETAIL NO. W-6

DATE: JANUARY 2021

SCALE: N.T.S.

CONCRETE MANHOLE BASE BEAMS (SEE FOOTING DETAIL)

2" MIN INSULATION BOARD

24" ALUMINUM COVER

12" MIN 18" MAX

INNER FROST PROOF LID

8" MIN

1/2 CU YD 1 1/2" ROCK

PLAN VIEW

ELEVATION VIEW

LEGEND

1	TYPE K COPPER TUBING
2	METER SETTER SUPPORT
3	METER SETTER
4	METER UNIT
5	48" CONCRETE MANHOLE
6	METER SETTER BYPASS

NOTES:

1. MANHOLE BASE BEAMS ARE REQUIRED FOR ALL INSTALLATIONS.

2. IF SURFACE IS NOT TO FINAL GRADE AT TIME OF METER INSTALLATION OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST VAULT TO MEET SPECIFICATIONS.

3. METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL (970) 350-9317.

4. ALUMINUM COVER SHALL NOT COME INTO DIRECT CONTACT WITH CONCRETE COLLAR.

5. NO CONCRETE FLOOR TO BE POURED IN METER VAULT.

6. NO SPRINKLER SYSTEM CONNECTIONS SHALL BE MADE IN THE METER VAULT. SPRINKLER PIT SHALL BE 5 FT MINIMUM DOWNSTREAM FROM THE METER, MEASURED EDGE TO EDGE.

7. NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 10 FT OF METER VAULT.

8. PRESSURE REDUCING AND BACKFLOW DEVICES SHALL BE INSTALLED INSIDE BUILDING SERVED. INSTALL PER LATEST CITY OF GREELEY ADOPTED PLUMBING CODE.

9. REFER TO CITY OF GREELEY WATER AND SEWER CONSTRUCTION SPECIFICATIONS, CURRENT VERSION, FOR PRODUCT SPECIFICATIONS.

City of Greeley Colorado

OUTSIDE SETTING FOR 1 1/2" & 2" METER

DETAIL NO. W-8

DATE: JANUARY, 2008

SCALE: N.T.S.

REVISIONS

DESCRIPTION

DATE

BY

BAMG

JFS

BAMG

0005_CONSTRUCTION DETAILS

COLORADO L/C/PLANNING APPROVAL PENDING APPROVAL NOT FOR CONSTRUCTION PERSONAL ENGINEER

ZIGGI'S SEVERANCE SITE PLAN

CONSTRUCTION DETAILS

TST

TST, INC.

CONSULTING ENGINEERS

748 Whalers Way

Suite 200 Fort Collins

Colorado 80525

Phone: 970.226.0557

JOB NO: 1076.0005.00

SCALE: N.T.S.

DATE: JANUARY 2023

SHEET: 9 of 15

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TYPICAL VAULT NOTES:

- ALL METER, VALVE, AND VAULT COMPONENTS AND PRODUCT SPECIFICATIONS SHALL BE IN ACCORDANCE WITH APPROVED CONSTRUCTION DRAWINGS ALONG WITH W & S DEPARTMENT SPECIFICATIONS, LATEST REVISION.
- PIPING CONFIGURATION IS GENERAL AND INDICATES MINIMUM REQUIREMENTS. CONTRACTOR TO PROVIDE ADDITIONAL PIPING, COUPLINGS, REDUCERS, AND ACCESSORIES AS NECESSARY FOR A COMPLETE SYSTEM. VAULT MODIFICATIONS MAY BE REQUIRED FOR A COMPLETE SYSTEM.
- METER OR PRV COMPONENTS, INSTRUMENTATION, AND ELECTRICAL SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR TO SUBMIT VAULT MANUFACTURER'S SHOP DRAWINGS TO ENGINEERING DEVELOPMENT REVIEW FOR ACCEPTANCE A MINIMUM OF 2 WEEKS PRIOR TO ORDER AND INSTALLATION.
- APPROPRIATE LENGTH OF STRAIGHT PIPE SEGMENTS UPSTREAM AND DOWNSTREAM OF METER OR VALVE SHALL BE PROVIDED PER THE METER/VALVE MANUFACTURER'S RECOMMENDATION.
- FOR INSTALLATIONS LARGER THAN 2", ALL PIPING AND APPURTENANCES WITHIN THE VAULT SHALL BE FLANGED DIP. ALL OTHER EXTERIOR PIPING AND APPURTENANCES, BETWEEN AND INCLUDING THE EXTERIOR TEES AND VALVES, SHALL BE MECHANICAL RESTRAINED JOINT DIP.
- ALL VAULT JOINTS SHALL BE WATER TIGHT.
- ALL EQUIPMENT AND PIPING SHALL BE ADEQUATELY SUPPORTED AND ATTACHED TO THE VAULT WALL USING STAINLESS STEEL FASTENERS AND BOLTS OR APPROVED EQUIVALENT.
- VAULT COVERS SHALL BE APPROVED MANHOLE COVERS, MARKED "WATER" OR "IRRIGATION" AS REQUIRED, AND INCLUDE AN INNER FROST PROOF LID. REFER TO WATER & SEWER SPECIFICATIONS, LATEST REVISION, FOR APPROVED VAULT COVER MATERIALS AND MANUFACTURERS.
- FOR VAULTS PERMITTED IN ROAD ROW, VAULT AND RING/COVER SHALL BE RATED FOR HS-20 TRAFFIC LOADINGS.
- VAULT LADDER SHALL HAVE OSHA-APPROVED EXTENSION POST INSTALLED IF VAULT FLOOR IS GREATER THAN 5 FEET BELOW VAULT COVER.
- VAULT EXTERIOR SHALL BE COVERED WITH 2" THICK INSULATION BOARD.
- SLOPE FINAL GROUND SURFACE AWAY FROM VAULT AT A 2% MINIMUM GRADE.
- VAULT SHALL BE BACKFILLED AND COMPACTED IN ACCORDANCE WITH WATER & SEWER SPECIFICATIONS, LATEST REVISION.
- MANHOLE BASEBEAMS ARE REQUIRED FOR ALL MANHOLE VAULT INSTALLATIONS.
- ALL PIPING TO BE PRESSURE TESTED PER W & S SPECIFICATIONS, LATEST REVISION.
- ALL THREADED CONNECTIONS SHALL HAVE TEFLON TAPE OR APPROVED EQUIVALENT TO ENSURE NO LEAKING OCCURS.
- COPPER SHALL NOT SHOW ANY VISIBLE SIGNS OF CRIMPING.

VAULT ELECTRICAL SPECIFICATIONS:

- PROVIDE 100 AMP 240/120 VOLT METER LOAD CENTER COMBINATION WITH A MINIMUM 12 SPACES, LOCATED WITHIN 25' OF VAULT.
- PROVIDE 1 1/4" CONDUIT, SCHEDULE 80, FROM LOAD CENTER TO JUNCTION OR PULL BOX IN VAULT.
- JUNCTION OR PULL BOX SHALL HAVE 6"x6" MINIMUM PANEL LOCATED INSIDE VAULT FOR EXTRA CIRCUIT CONDUIT CONNECTIONS.
- PROVIDE FIVE 15-AMP BREAKERS FOR LOAD CENTER.
- PROVIDE OUTLET FOR SUMP PUMP AND DEHUMIDIFIER, 15-AMP 120 VOLT CIRCUIT.
- PROVIDE LED LIGHTING CIRCUIT: TWO 10-WATT LED LIGHTS WITH OUTDOOR SWITCH LOCATED IN VAULT ON 15-AMP 120 VOLT CIRCUIT.
- PROVIDE ONE 15-AMP GFI OUTLET FOR SERVICE WORK LOCATED INSIDE VAULT.
- ALL CONDUIT BOXES, FITTINGS, AND HANGERS SHALL BE PVC, FIBERGLASS, OR STAINLESS STEEL AND SUITABLE FOR OUTDOOR USE.
- PROVIDE DISCONNECT LOCATED BEFORE METER COMBINATION AS REQUIRED PER ELECTRIC UTILITY IF APPLICABLE.
- PROVIDE 2" SCHEDULE 80 PVC CONDUITS FROM POLE TO TRANSFORMER TO LOAD CENTER.
- PROVIDE 240 VOLT SURGE PROTECTION FOR LOAD CENTER.
- MUST MEET ALL CITY OF GREELEY AND STATE ELECTRICAL CODE REQUIREMENTS.

DEHUMIDIFIER SPECIFICATIONS:

- DEHUMIDIFIER SHALL BE A LOW TEMP 38 DEGREES OR LOWER AND BE INSTALLED TO MANUFACTURER SPECIFICATIONS.
- DEHUMIDIFIER SHALL BE INSTALLED A MINIMUM 2' FROM THE VAULT FLOOR.
- A MINIMUM 1/2" HOSE SHALL BE INSTALLED FROM DEHUMIDIFIER TO THE SUMP PIT.

METER INSTALLATION NOTES:

- IF SURFACE IS NOT TO FINAL GRADE AT TIME OF METER INSTALLATION OR GRADE CHANGES AFTER INSTALLATION, OWNER MUST ADJUST VAULT TO MEET SPECIFICATIONS.
- METER SETTING MUST BE INSPECTED BEFORE BACKFILLING. FOR INSPECTION CALL (970) 350-9317.
- NO SPRINKLER SYSTEM CONNECTION SHALL BE MADE IN THE VAULT. SPRINKLER PIT SHALL BE MINIMUM 5' DOWNSTREAM FROM THE FINAL VAULT APPURTENANCE (BYPASS TEE).
- NO MAJOR LANDSCAPING OR STRUCTURES SHALL BE LOCATED WITHIN 10' OF METER VAULT.
- PRESSURE REDUCING AND BACKFLOW DEVICES SHALL BE INSTALLED INSIDE THE BUILDING SERVED. INSTALL PER CITY OF GREELEY ADOPTED BUILDING CODE.
- REFER TO W & S SPECIFICATIONS, LATEST REVISION, FOR PRODUCT SPECIFICATIONS.
- LOCATION OF METER VAULT SHALL NOT BE MORE THAN 2 FEET DOWNSTREAM OF CURBSTOP UNLESS OTHERWISE PLACED BY METER SERVICES.

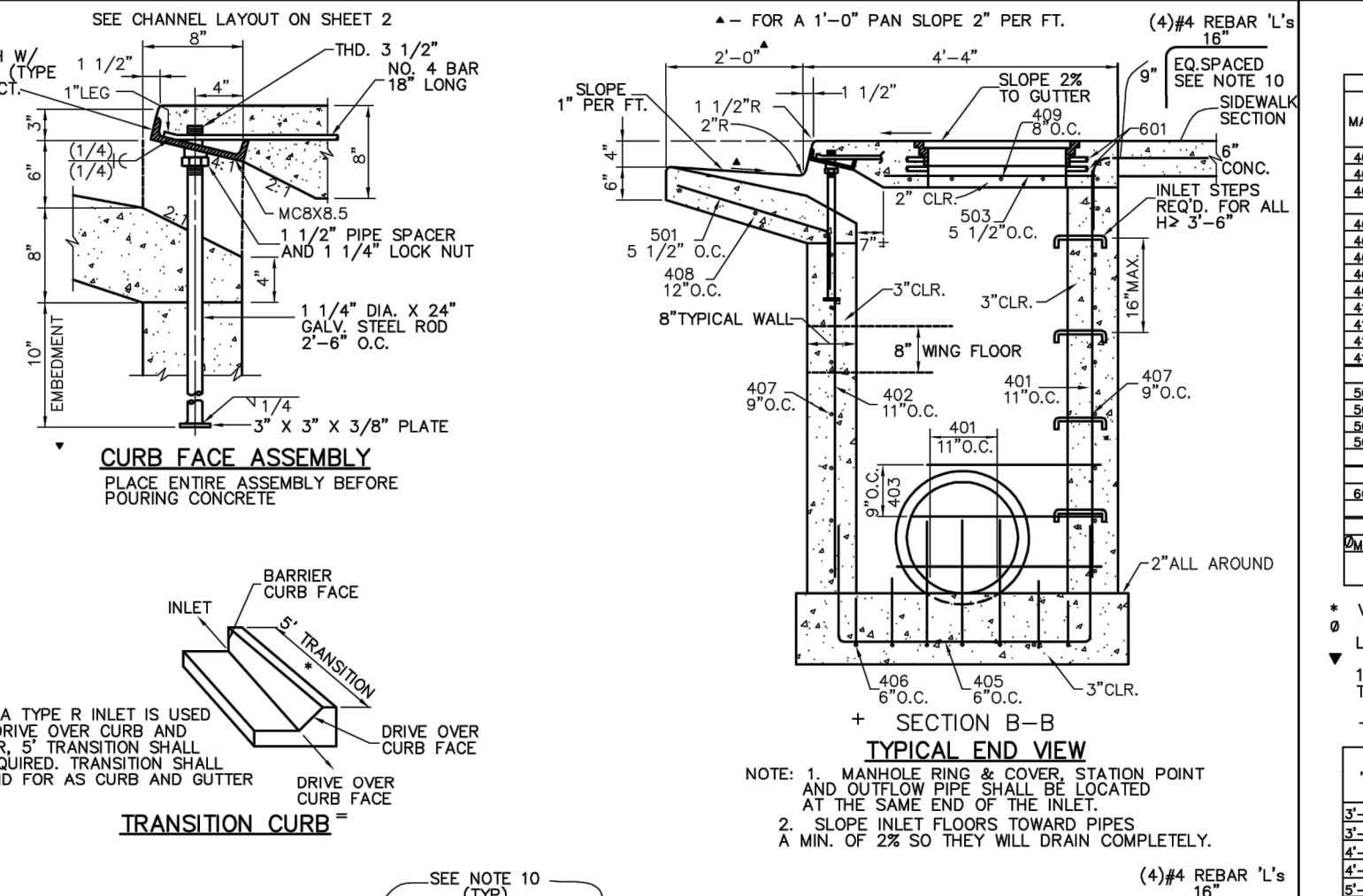
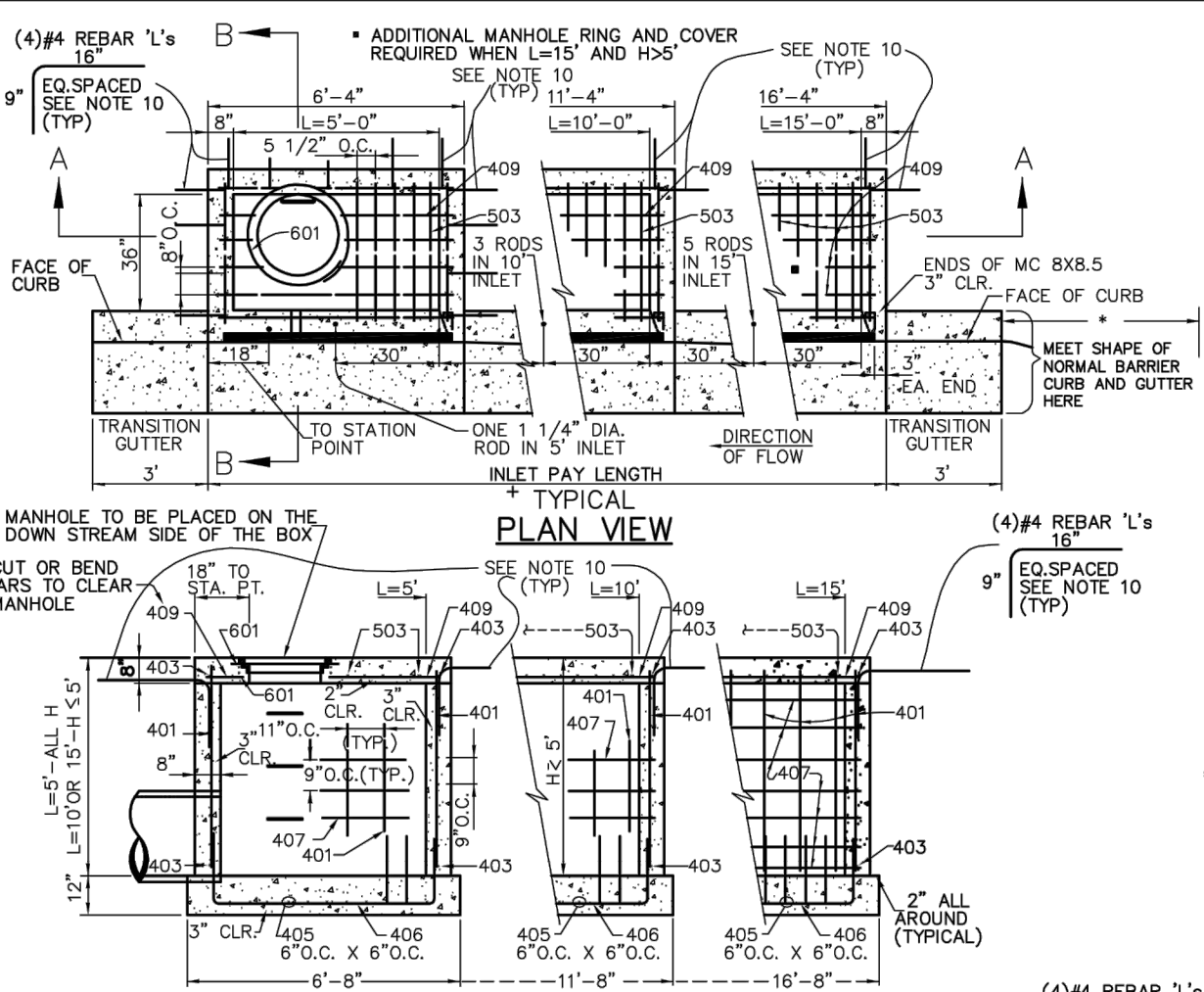


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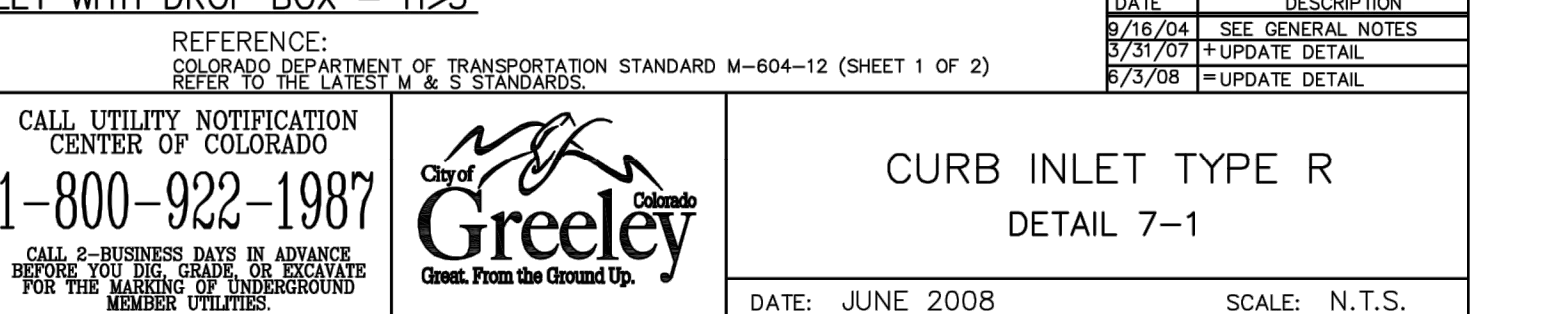
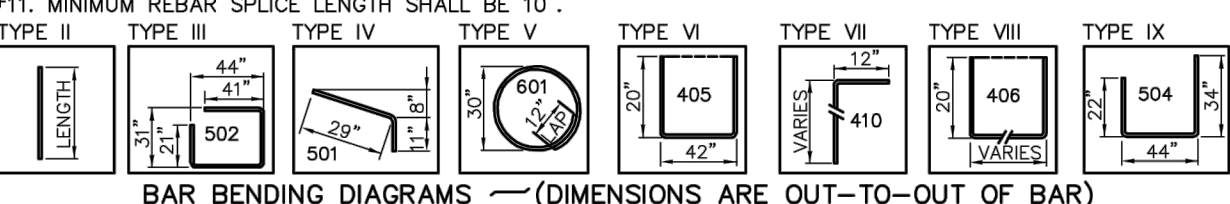
TYPICAL VAULT NOTES

DETAIL W-15

SCALE: N.T.S.



- CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL (MGEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT, SECTION 11.2 MATERIALS.
- INLET MAY BE CAST-IN-PLACE OR PRECAST. CAST-IN-PLACE CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES. EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4".
- REINFORCING BARS SHALL BE DEFORMED, GRADE 60, PER ASTM A615, EPOXY COATED, AND SHALL HAVE A 2" MINIMUM CLEARANCE.
- STEPS SHALL BE PROVIDED WHEN INLET DIMENSION "H" EXCEEDS 3'-6" AND SHALL BE IN ACCORDANCE WITH AASHTO M 199.
- ALL GRATES AND FRAMES SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO C900-712.06. GRATES AND FRAMES SHALL BE DESIGNED TO WITHSTAND HS-20 LOADING.
- SEE PLAN DETAILS FOR LOCATION AND SIZE OF PIPE.
- SEE DETAIL 7-3 FOR BAR LIST AND INLET QUANTITIES.
- TYPE R DISCOURAGED ON DRIVE OVER CURB.
- INLET STRUCTURES SHALL NOT BE CONSTRUCTED UNTIL THE CURB AND GUTTER HAS BEEN INSTALLED, OR CONTRACTOR STAKES THE CURB & GUTTER FOR 100' ON EACH SIDE OF INLET. CONTRACTOR MUST ALSO STAKE INLET BOX CORNERS.
- ADD (4) #4 REBARS-"L" SHAPED, EQUALLY SPACED MID-DEPTH INTO THE CONCRETE LID & WALL AND MID-DEPTH INTO EACH SIDEWALK SECTION POURED NEXT TO THE INLET (TYP L=5'). 4 ADDITIONAL BARS ARE REQUIRED FOR EACH 2' OF LENGTH ADDED FOR DOUBLE OR TRIPLE INLET.
- MINIMUM REBAR SPICE LENGTH SHALL BE 10'.

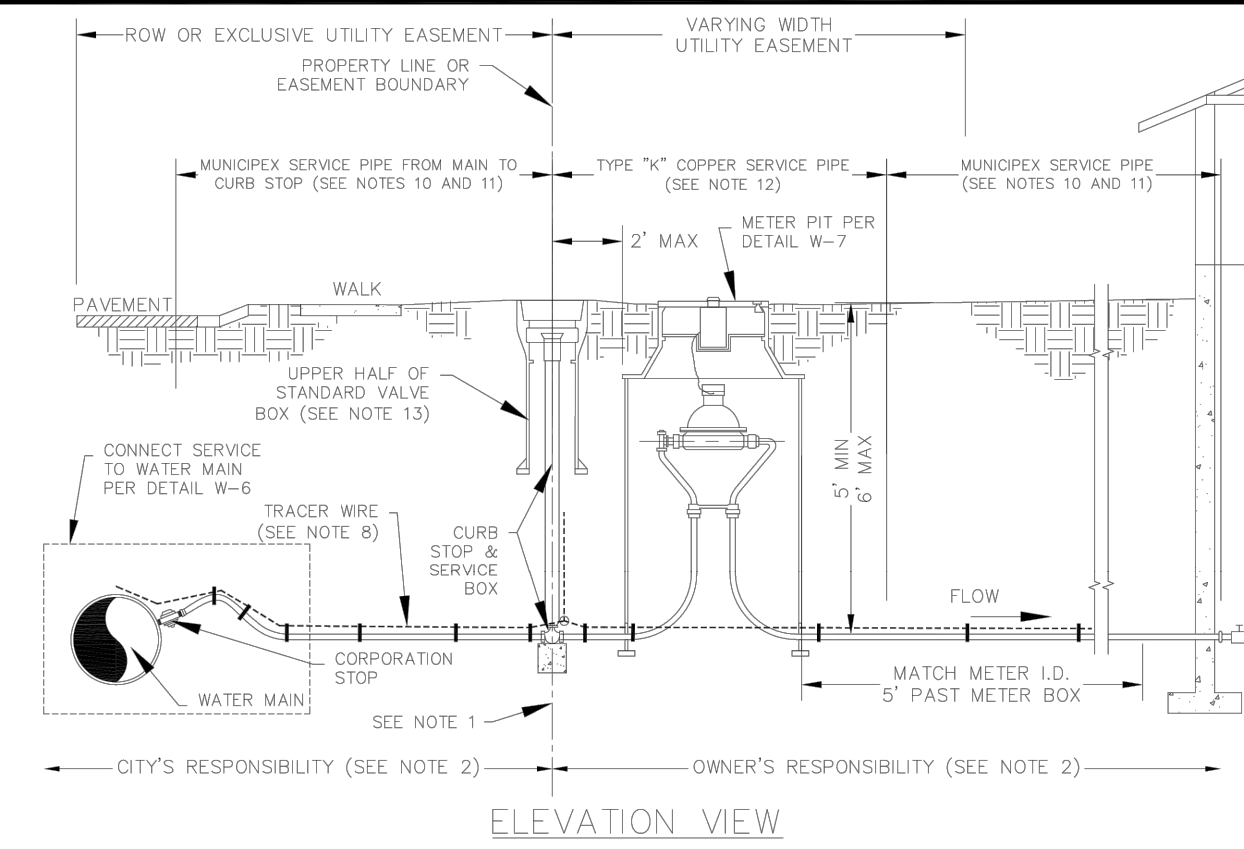


BAR BENDING DIAGRAMS (DIMENSIONS ARE OUT-TO-OUT OF BAR)

CALL UTILITY NOTIFICATION CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
PROVIDING LOCATION AND DEPT. OF ALL UTILITIES
FOR THE MARKING OF UNDERGROUND
MANHOLE UTILITIES.

CURB INLET TYPE R
DETAIL 7-1

DATE: JUNE 2008 SCALE: N.T.S.



NOTES

- PLACEMENT OF CURB STOP SERVICE BOX MAY VARY FROM A MAXIMUM OF ±1 FOOT OF THE PROPERTY LINE. PLACEMENT OF CURB STOP OUTSIDE THE PROPERTY LINE IS PREFERRED. ANY VARIANCE OF LOCATION OF CURB STOP MUST BE APPROVED PRIOR TO CONSTRUCTION.
- WATER DEPARTMENT'S RESPONSIBILITY SHALL BE THE WATER MAIN, THE METER INSIDE THE METER PIT, THE CORPORATION STOP, AND SERVICE PIPING FROM THE WATER MAIN UP TO THE TUBE NUT ON THE STREET SIDE OF THE CURB STOP. OWNER'S RESPONSIBILITY SHALL INCLUDE THE METER PIT, AND EVERYTHING FROM THE STRUCTURE UP TO AND INCLUDING THE CURB STOP AND BOX, EXCEPT FOR THE METER ITSELF.
- SHOULD ANY SITUATION ARISE OTHER THAN SHOWN CONCERNING THE DEPTH OR OBSTRUCTION OF SERVICE LINE OR THE PLACEMENT OF THE METER PIT OR STOP BOX, CALL (970) 350-9317 AND ASK FOR METER SERVICES DIVISION.
- REFER TO WATER AND SEWER STANDARD DRAWINGS AND CONSTRUCTION SPECIFICATIONS FOR METER INSTALLATION REQUIREMENTS.
- POTABLE WATER SERVICE METER PITS/ VAULTS SHALL BE LOCATED IN A LANDSCAPED AREA WITHIN 2 FEET OF THE CURB STOP ON OWNER'S PROPERTY. SEE DESIGN CRITERIA, LATEST REVISION, FOR METER PIT LOCATION.
- CURB STOP IS TO BE MINNEAPOLIS PATTERN OR APPROVED EQUAL.
- CURB STOP MUST BE INSTALLED WITH EITHER PLASTIC OR STAINLESS STEEL PIPE INSERTS TO ENSURE PROPER COMPRESSION FITTING ON MUNIPEX PIPE.
- INSTALL TRACER WIRE ACCORDING TO CITY OF GREELEY WATER & SEWER SPECIFICATIONS AND STANDARD DETAILS, LATEST REVISION.
- ALL BURIED PIPE, FITTINGS, VALVES, AND APPURTENANCES SHALL BE INSTALLED AND RESTRAINED IN ACCORDANCE WITH WATER & SEWER SPECIFICATIONS, LATEST REVISION.
- SERVICE PIPE INSTALLED FROM THE MAIN TO CURB STOP AND FROM 2 FT PAST THE METER PIT ON THE OWNER SIDE UP TO BUILDING SHALL BE MUNIPEX OR APPROVED EQUAL ACCORDING TO BUILDING CODE. REFER TO WATER & SEWER CONSTRUCTION SPECIFICATIONS FOR APPROVED SERVICE PIPE PRODUCT AND MFR REQUIREMENTS.
- SERVICE PIPE SHALL BE SIZED ACCORDING TO SERVICE TAP INSIDE DIAMETER AND MUST COMPLY WITH AWWA C904. SEE W&S DESIGN CRITERIA, LATEST REVISION.
- TYPE "K" COPPER SHALL BE PLACED FROM THE CURB STOP, THROUGH THE METER PIT, AND UP TO 2 FEET PAST THE METER PIT ON CUSTOMER SIDE.
- UPPER HALF OF STANDARD VALVE BOX SHALL BE PLACED OVER CURB STOP AND TRACER WIRE TEST STATION LOOP ACCORDING TO WATER AND SEWER SPECIFICATIONS, LATEST REVISION.

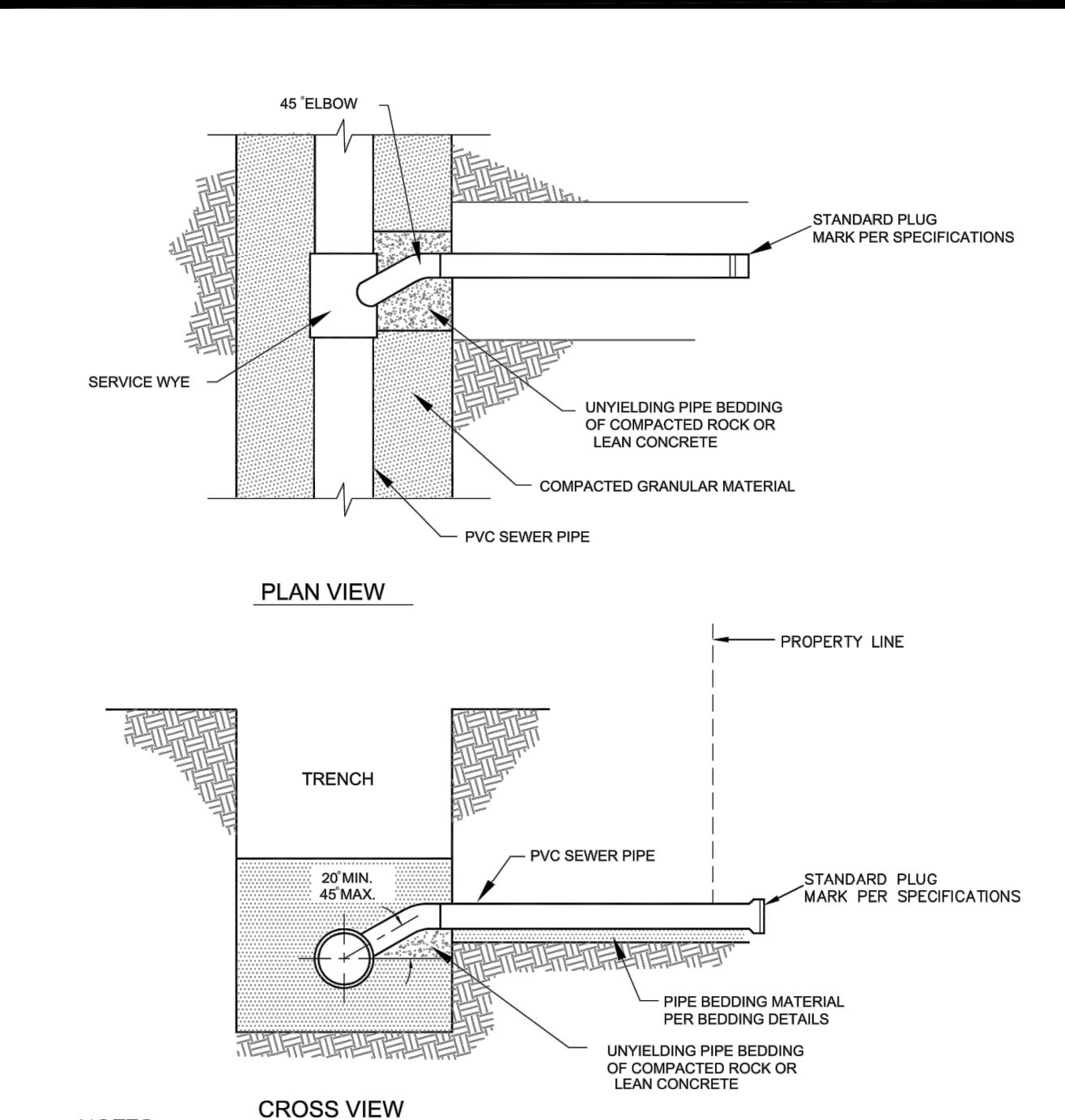


POTABLE WATER SERVICE LINE, STOP BOX, & METER INSTALLATION

DETAIL W-9

DATE: JANUARY 2021

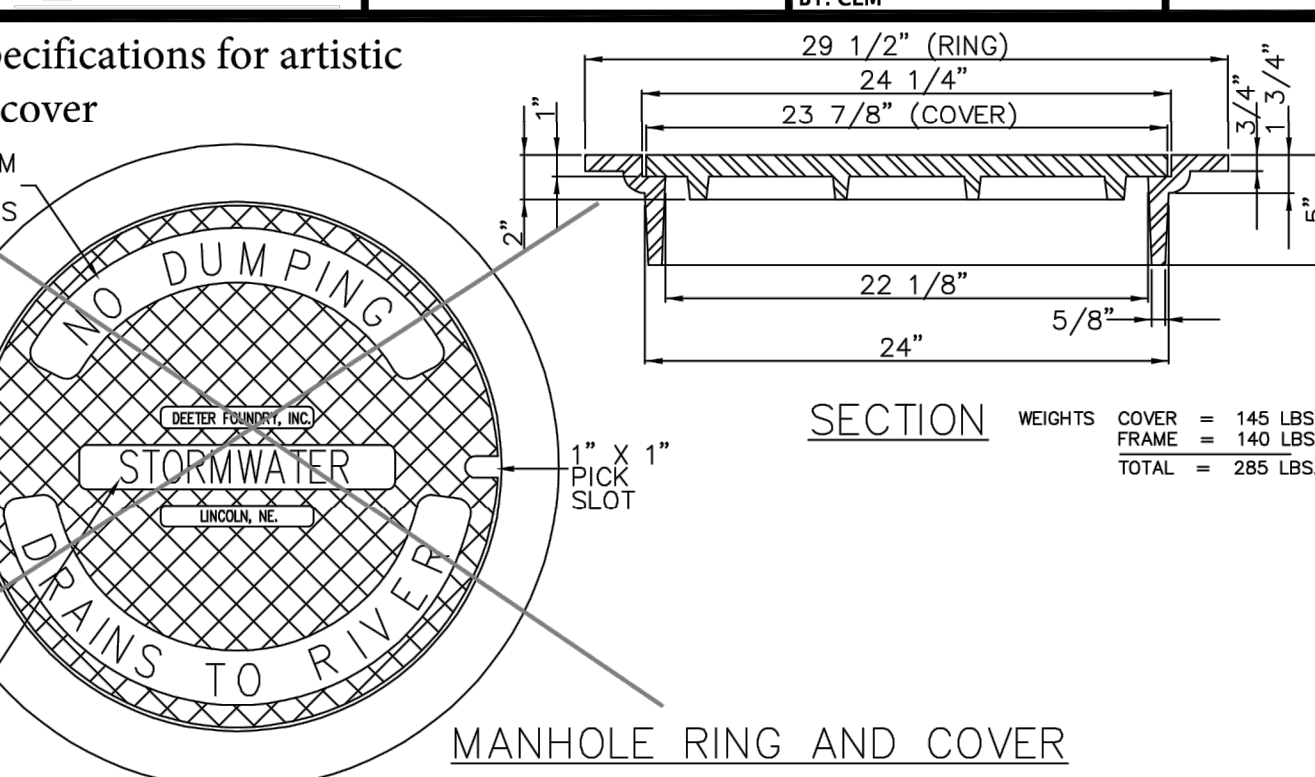
SCALE: N.T.S.



NOTES:

- IN NO CASE SHALL THE SERVICE LINE PROTRUDE INTO THE MAIN.
- SERVICES ARE 4" OR 6" IN DIAMETER AND SHALL HAVE A MINIMUM SLOPE OF 1.0% (1/8" PER FOOT) AND A MAXIMUM SLOPE OF 8.0%.
- SERVICES LARGER THAN 6" DIAMETER SHALL BE CONNECTED TO A MANHOLE.
- SERVICES SHALL EXTEND TO THE PROPERTY LINE UNLESS OTHERWISE SHOWN ON CITY ACCEPTED CONSTRUCTION DRAWINGS.

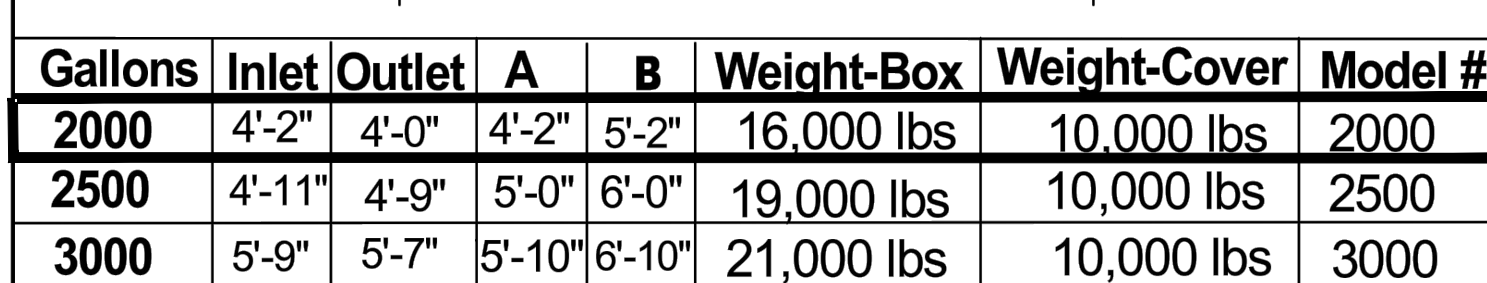
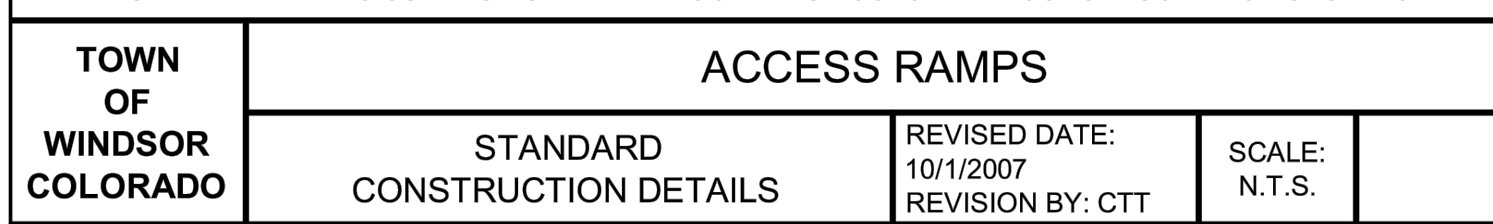
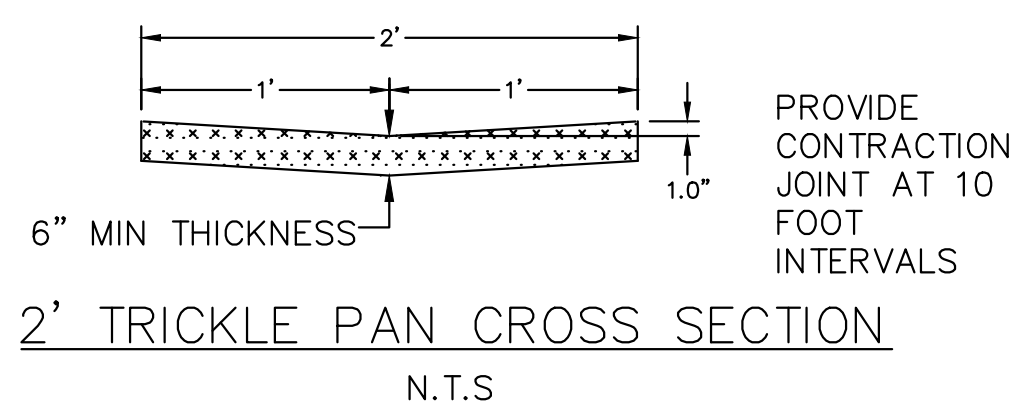
SANITARY SEWER SERVICE CONNECTION



GENERAL NOTES

- CONCRETE SHALL MEET OR EXCEED METROPOLITAN GOVERNMENT ENGINEERING COUNCIL (MGEC) SPECIFICATIONS, ITEM 11, PORTLAND CEMENT CONCRETE PAVEMENT, SECTION 11.2 MATERIALS.
- CONCRETE WALLS SHALL BE FORMED ON BOTH SIDES AND SHALL BE 8" THICK.
- INLET STEPS SHALL BE IN ACCORDANCE WITH AASHTO M 199.
- CURB FACE ASSEMBLY SHALL BE GALVANIZED AFTER WELDING.
- EXPOSED CONCRETE CORNERS SHALL BE CHAMFERED 3/4". CURB AND GUTTER CORNERS SHALL BE FINISHED TO MATCH THE EXISTING CURB AND GUTTER BEYOND THE TRANSITION GUTTER.
- REINFORCING BARS SHALL BE DEFORMED, GRADE 60, PER ASTM A615, EPOXY COATED, AND SHALL HAVE A 2" MINIMUM CLEARANCE.
- DIMENSIONS AND WEIGHTS OF TYPICAL MANHOLE RING AND COVER ARE NOMINAL.
- MATERIAL FOR MANHOLE RINGS AND COVERS SHALL BE GRAY OR DUCTILE CAST IRON CONFORMING TO C900-712.06.
- SINCE PIPE ENTRIES INTO THE INLET ARE VARIABLE, THE DIMENSIONS SHOWN ARE TYPICAL ACTUAL DIMENSIONS AND QUANTITIES FOR CONCRETE AND REINFORCEMENT SHALL BE REQUIRED IN THE WORK. QUANTITIES INCLUDE VOLUMES OCCUPIED BY PIPES.
- STRUCTURAL STEEL SHALL BE GALVANIZED AND SHALL CONFORM TO THE REQUIREMENTS OF C900-712.06.
- MINIMUM REBAR SPICE LENGTH SHALL BE 10'.

O.C. SPACING	TYPE	ALL INLETS				INLETS, H ≤ 8'				INLETS, H > 8'			
		L = 10'		L = 15'		L = 10'		L = 15'		L = 10'		L = 15'	
		NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH	NO. REQ'D	LENGTH
11"	II	2	4'-0"	15	18	2	4'-0"	2	4'-0"	2	4'-0"	2	4'-0"
12"	II	2	4'-0"	15	18	2	4'-0"	2	4'-0"	2	4'-0"	2	4'-0"
8"	W	11	8'-10"	21	8'-10"	31	8'-10"	11	8'-10"	11	8'-10"	11	8'-10"
8"	MI	7	8'-10"	7	13'-0"	7	18'-0"	7	8'-10"	7	8'-10"	7	8'-10"
8"	MI	7	8'-10"	7	10'-0"	7	10'-0"	7	8'-10"	7	8'-10"	7	8'-10"
12"	II	3	8'-0"	3	11'-0"	3	18'-0"	3	11'-0"	3	11'-0"	3	18'-0"
12"	II	6	8'-0"	6	10'-0"	6	10'-0"	6	10'-0"	6	10'-0"	6	10'-0"
11"	MI	3	8'-0"	3	11'-0"	3	18'-0"	3	8'-0"	3	8'-0"	3	8'-0"
12"	II	3	8'-0"	3	11'-0"	3	18'-0"	3	8'-0"	3	8'-0"	3	8'-0"
12"	II	3	8'-0"	3	11'-0"	3	18'-0"	3	8'-0"	3	8'-0"	3	8'-0"
12"	II	3	8'-0"	3	11'-0"	3	18'-0"	3	8'-0"	3	8'-0"	3	8'-0"
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12"	II	3	8'-0"	3	11'-0"	3	18'-0"	3	8'-0"	3	8'-0"	3	8'-0"
12"</													



Notes:
Reinforcing: Box #4 Rebar @ 12" O.C.E.W.
& Insert Cover #5 Rebar @ 12" O.C.E.W. & #5 Rebar Around Holes.
Lifting Plan: Box Uses Lifting Anchors (6CA67)
& Insert Cover Uses Wire Rope Anchors (WRA020)
Monolithic Poured Floor. H-20 Loading.
2, 4" / 3" High Pressure Boots On Standard Inlet & Outlet
And 1, 2" High Pressure Boot On Vent.
Baffle Height & Location Are Per Local Code.
Installation Of Pipe Should Also Be According To Local Code.
Secondary Compartment Has A Volume Equal To 1/3 Of The Total Capacity
5,000 P.S.I. Minimum Strength Envirocore Concrete.
We Produce A Green And Environmentally Friendly Product.

Copeland Enterprises Inc. 904 South Lipan Denver, CO 80223	2000, 2500, & 3000 Gallon Grease Or Sand & Oil Interceptor No Scale
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GRATE INSTALLATION DETAIL

SLOT DETAIL

ALTERNATE SLOT AND HOLD DOWN PLATE DETAIL

QUANTITIES FOR ONE INLET

H	CONCRETE (CU. YDS.)	STEEL (LBS.)	NO. STEPS REQ'D.
2'-6"	1.0	76	0
3'-0"	1.1	81	0
3'-6"	1.2	97	0
4'-0"	1.3	102	1
4'-6"	1.5	117	2
5'-0"	1.6	123	2
5'-6"	1.7	138	2
6'-0"	1.9	143	3
6'-6"	2.0	159	3
7'-0"	2.1	164	3
7'-6"	2.2	180	4
8'-0"	2.4	185	4
8'-6"	2.5	200	4
9'-0"	2.6	206	5
9'-6"	2.8	221	5
10'-0"	2.9	236	6
11'-6"	3.3	252	6

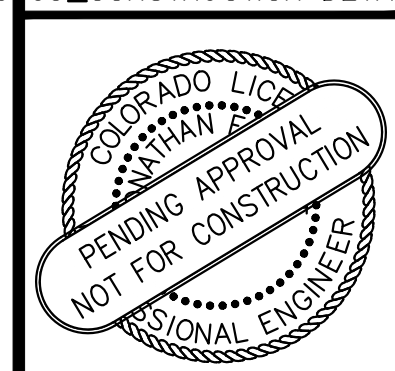
GENERAL NOTES

- INLET TYPE C IS NOT H5-20 RATED AND SHALL NOT BE PLACED IN PAVED ROADWAYS. THIS INLET SHALL BE USED ONLY OUTSIDE PAVED AREAS.
- CONCRETE SHALL BE CLASS II AND SHALL BE CAST-IN-PLACE OR PRECAST.
- REINFORCING BARS SHALL BE GRADE 60, EPOXY COATED, AND DEFINED #4, AND SHALL HAVE A MIN. 2" INCH CLEARANCE CUT OR BEND AROUND PIPS AS REQUIRED.

▼ PIPE INLET DIAMETER SHALL BE 30 IN. OR LESS. CONCRETE AND STEEL QUANTITIES ARE FOR ONE ENTIRE INLET BEFORE REDUCTION FOR VOLUME OCCUPIED BY PIPE. WEIGHT OF STEEL INCLUDES A RING FOR THE MAXIMUM PIPE DIAMETER.

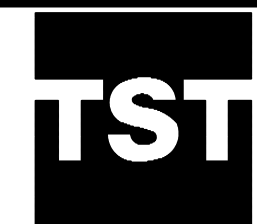
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DRAWN	BAMG
CHECKED	JFS
DESIGNED	BAMG
FILENAME	005_CONSTRUCTION DETA



ZIGGI'S SEVERANCE SITE PLAN

CONSTRUCTION DETAILS



TST, INC.
CONSULTING ENGINEERS
748 Whalers Way
Suite 200 Fort Collins
Colorado 80525
Phone: 970.226.0557

JOB NO. 1076.0005.00

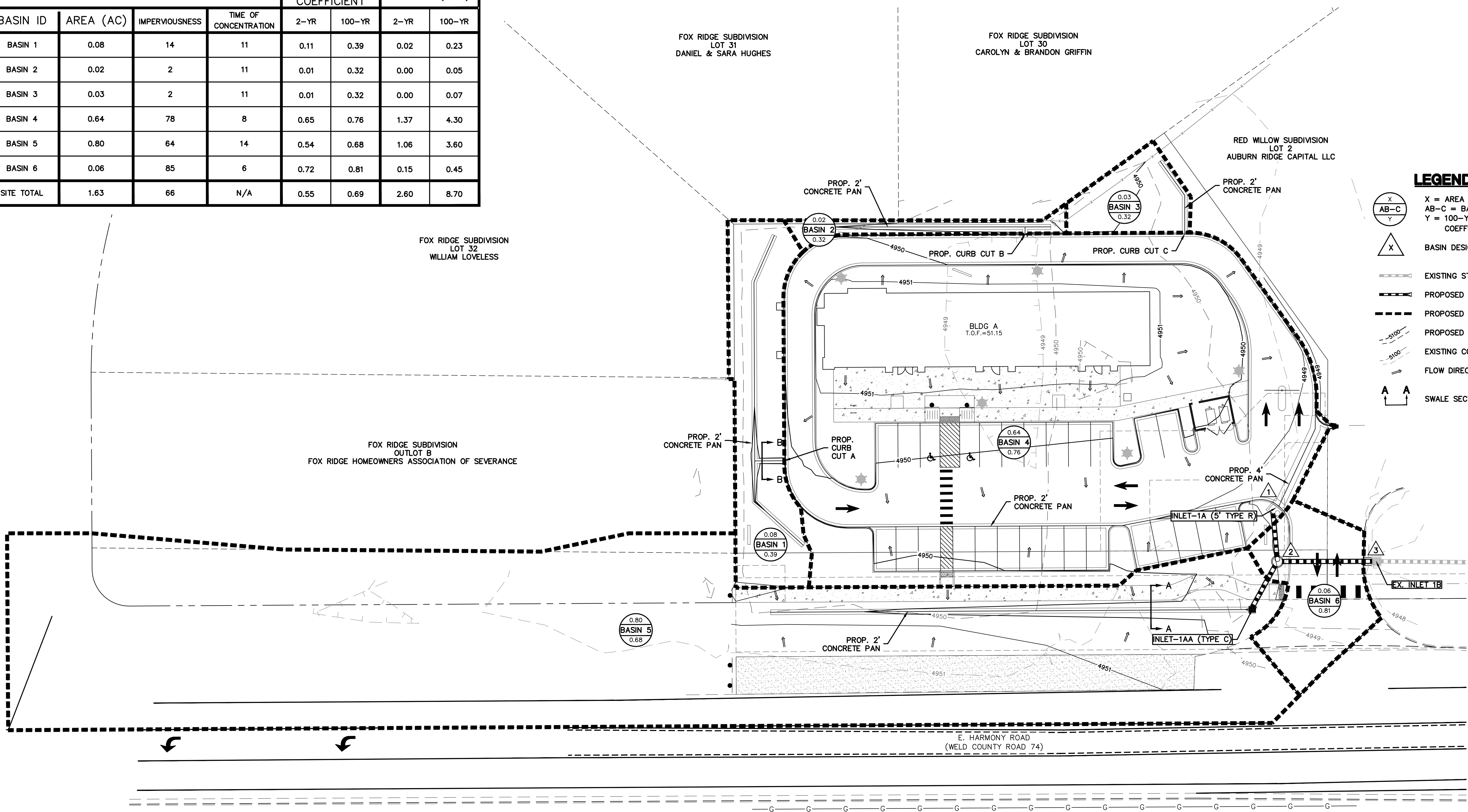
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DATE JANUARY 2023

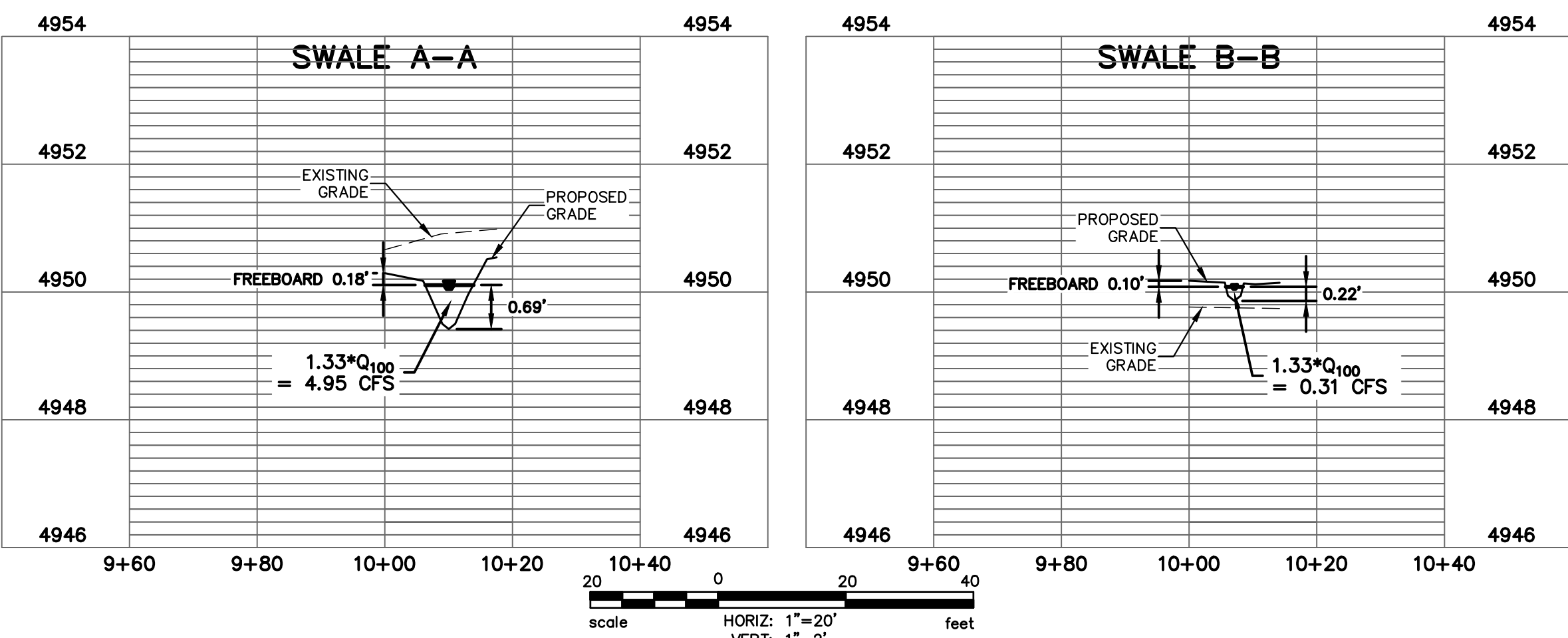
SHEET

11 of 15

BASIN ID	AREA (AC)	IMPERVIOUSNESS	TIME OF CONCENTRATION	RUNOFF COEFFICIENT		RUNOFF (CFS)	
				2-YR	100-YR	2-YR	100-YR
BASIN 1	0.08	14	11	0.11	0.39	0.02	0.23
BASIN 2	0.02	2	11	0.01	0.32	0.00	0.05
BASIN 3	0.03	2	11	0.01	0.32	0.00	0.07
BASIN 4	0.64	78	8	0.65	0.76	1.37	4.30
BASIN 5	0.80	64	14	0.54	0.68	1.06	3.60
BASIN 6	0.06	85	6	0.72	0.81	0.15	0.45
SITE TOTAL	1.63	66	N/A	0.55	0.69	2.60	8.70



- LEGEND**
- X = AREA (ACRES)
AB-C = BASIN NUMBER
Y = 100-YR RUNOFF COEFFICIENT "C"
 - BASIN DESIGN POINT
 - EXISTING STORM SEWER
 - PROPOSED STORM SEWER
 - PROPOSED BASIN BOUNDARY
 - PROPOSED CONTOURS
 - EXISTING CONTOURS
 - FLOW DIRECTION
 - SWALE SECTION



REVISIONS

DATE	DESCRIPTION

DRAWN

BAMG

CHECKED

JFS

DESIGNED

BAMG

FILENAME

0005_DRAINAGE

COLORADO LICENSE
NATHAN A. ZIGGI
PENDING APPROVAL
NOT FOR CONSTRUCTION
PROFESSIONAL ENGINEER

ZIGGI'S SEVERANCE SITE PLAN

DRAINAGE PLAN

TST

TST, INC.

CONSULTING ENGINEERS

748 Whalers Way

Suite 200 Fort Collins

Colorado 80525

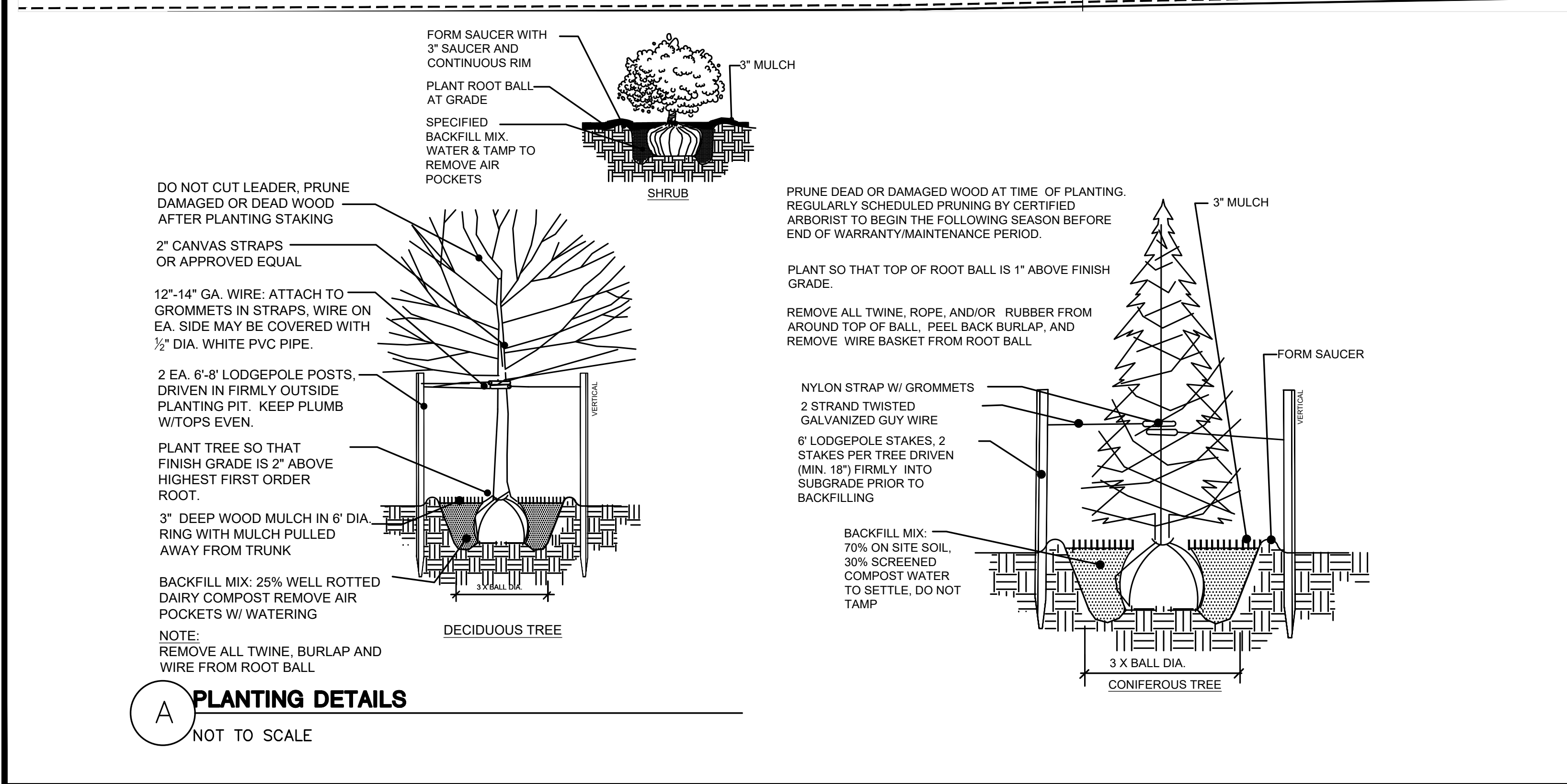
Phone: 970.226.0557

JOB NO. 1076.0005.00

SCALE 1" = 20'

DATE JANUARY 2023

SHEET 12 of 15



EVERGREEN TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPREAD	HEIGHT	HYDROZONE	
PPBA	2	PICEA PUNGENS 'BAKERI'	BAKERI SPRUCE	6' HT. B&B	20'	40'	MED.	
SMALL TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPREAD	HEIGHT	HYDROZONE	
ATAT	2	ACER TATARICUM	TATARIAN MAPLE	B&B 1.5" CAL MIN.	20'	20'	LOW	
STREET/LARGE TREES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPREAD	HEIGHT	HYDROZONE	
GTII	3	GLEDTISIA TRIACANTHOS INERMIS 'IMPERIAL'	IMPERIAL HONEYLOCUST	B&B 2.0" CAL MIN.	40'	40'	LOW	
GD	3	GYMNOCLADUS DIOICA 'ESPRESSO'	KENTUCKY COFFEETREE	B&B 2.0" CAL MIN.	50'	60'	LOW	
QMUE	2	QUERCUS MUEHLENBERGII	CHINKAPIN OAK	B&B 2.0" CAL MIN.	50'	50'	LOW	
QSHU	3	QUERCUS SHUMARDII	SHUMARD RED OAK	B&B 2.0" CAL MIN.	40'	50'	LOW	
UACC	3	ULMUS X 'ACCOLADE'	ACCOLADE ELM	B&B 2.0" CAL MIN.	40'	70'	MED.	
SHRUBS	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPREAD	HEIGHT	HYDROZONE	SPACING
SGE	22	CORNUS SERICEA 'ARTIC FIRE'	ARTIC FIRE DOGWOOD	5 GAL	4' O.C.	4'	MED.	48" o.c.
EFO	17	EUONYMUS FORTUNEI 'EMERALD GAIETY' TM	EMERALD GAIETY EUONYMUS	5 GAL	4' O.C.	2'	MED.	48" o.c.
FIN	9	FORSYTHIA X INTERMEDIA 'GOLD TIDE' TM	GOLD TIDE FORSYTHIA	5 GAL	4' O.C.	2'	MED.	48" o.c.
JCA	35	JUNIPERUS CHINENSIS 'ARMSTRONGII'	ARMSTRONG JUNIPER	5 GAL	3' O.C.	3'	LOW	36" o.c.
JCG	13	JUNIPERUS COMMUNIS 'GREEN CARPET'	GREEN CARPET JUNIPER	5 GAL	6' O.C.	1'	LOW	72" o.c.
JSC	4	JUNIPERUS SCOPULORUM	ROCKY MOUNTAIN JUNIPER	5 GAL	12' O.C.	30'	LOW	144" o.c.
JSM	7	JUNIPERUS SCOPULORUM 'MEDORA'	MEDORA JUNIPER	5 GAL	5' O.C.	20'	LOW	60" o.c.
MAC	12	MAHONIA AQUIFOLIUM 'COMPACTA'	COMPACT OREGON GRAPE	5 GAL	3' O.C.	3'	MED.	36" o.c.
PAT	6	PEROVSKIA ATRIPLICIFOLIA	RUSSIAN SAGE	5 GAL	4' O.C.	4'	LOW	48" o.c.
POL	15	PHYSCOPARUS OPULIFOLIUS 'LITTLE DEVIL' TM	DWARF NINEBARK	5 GAL	4' O.C.	3'	LOW	48" o.c.
PFR	26	POTENTILLA FRUTICOSA	BUSH CINQUEFOIL	5 GAL	4' O.C.	3'	LOW	48" o.c.
PBR	14	PRUNUS BESSEYI 'PAWNEE BUTTES'	SAND CHERRY	5 GAL	6' O.C.	2'	LOW	72" o.c.
RAR	8	RHUS ARNICA 'GRO-LOW'	GRO-LOW FRAGRANT SUMAC	5 GAL	6' O.C.	3'	LOW	72" o.c.
SRA	9	SYRINGA PATULA 'MISS KIM'	MISS KIM LILAC	5 GAL	5' O.C.	5'	LOW	60" o.c.
VA	7	VIBURNUM TRILOBUM 'ALFREDO COMPACTUM'	ALFREDO COMPACT AMERICAN CRANBERRYBUSH	5 GAL	5' O.C.	5'	MED.	60" o.c.
GRASSES	QTY	BOTANICAL NAME	COMMON NAME	SIZE	SPREAD	HEIGHT	HYDROZONE	SPACING
BG	61	BOUTELOUA GRACILIS 'BLONDE AMBITION'	BLUE GRAMA	1 GAL	3' O.C.	3'	LOW	36" o.c.
CB	130	CALAMAGROSTIS BRACHYTRICHA	REED GRASS	5 GAL	3' O.C.	4'	LOW	36" o.c.
SS	17	SCHIZACHYRIUM SCOPARIUM 'THE BLUES'	LITTLE BLUESTEM	5 GAL	2' O.C.	4'	LOW	24" o.c.

<u>GROUND COVERS</u>	<u>COMMON NAME</u>
	COBBLE/ROCK MULCH
	NATIVE SEED - DRY LAND PASTURE MIX
	TURF

PLANT CATEGORY	SF	WATER USE	GAL / SF	GALS / SEASON
IRRIGATED TURF	3,991	HIGH	15	59,865
PLANTING BEDS	7,528	MEDIUM	3	22,584
NATIVE SEEDING	6,852	LOW	2	13,704
		TOTAL GALLONS USED		96,153.00

1. ANY DISCREPANCIES WITH THE DRAWINGS AND SITE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING WITH CONSTRUCTION.
2. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS, EASEMENTS, PROPERTY LINES, ETC. PRIOR TO STARTING WORK. SHOULD ANY DISCREPANCIES, OMISSIONS, OR ERRORS OCCUR, NOTIFY THE OWNER'S REPRESENTATIVE IMMEDIATELY.
3. CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL UTILITIES 48 HRS. PRIOR TO ANY EXCAVATION OR PLANTING.
4. LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY COORDINATION WITH SUBCONTRACTORS AS REQUIRED TO ACCOMPLISH PLANTING OR LANDSCAPING OPERATIONS.
5. EXCAVATED MATERIAL TO BE USED AS FILL WILL HAVE ALL ROCKS, DEBRIS, WASTE MATERIAL, FROZEN MATERIAL, VEGETATION LARGER THAN 3" IN ANY DIMENSION REMOVED BEFORE PLACEMENT AND COMPACTION OF SOIL.
6. PROVIDE POSITIVE DRAINAGE AWAY FROM BUILDING FOUNDATIONS AND A SMOOTH TRANSITION BETWEEN ALL ADJACENT EXISTING GRADES AND PROPOSED GRADES.
7. ONCE COMPACTED AND FINE GRADED, ALL ROCKS, DEBRIS, WASTE MATERIAL AND VEGETATION MATERIAL LARGER THAN 2" WILL BE RAKED FROM THE SURFACE AND REMOVED FROM SITE.
8. TO THE MAXIMUM EXTENT FEASIBLE, TOPSOIL THAT IS REMOVED DURING CONSTRUCTION ACTIVITY SHALL BE CONSERVED FOR LATER USE ON AREAS REQUIRING RE-VEGETATION AND LANDSCAPING.
9. PRIOR TO ANY MAJOR INSTALLATION, THE SOIL IN ALL NON-PAVED AREAS INCLUDING PARKWAYS AND MEDIAN SHALL BE THOROUGHLY LOOSENED TO A DEPTH OF NOT LESS THAN EIGHT (8) INCHES AND SOIL AMENDMENT SHALL BE THOROUGHLY INCORPORATED INTO THE SOIL TO A DEPTH OF SIX (6) INCHES BY TILLING, DISCING OR OTHER SUITABLE METHOD, AT A RATE OF AT LEAST THREE (3) CUBIC YARDS OF SOIL AMENDMENT PER ONE THOUSAND (1,000) SQUARE FEET OF LANDSCAPED AREA.
10. ALL PLANT MATERIALS ARE SIZED AND OUTLINED IN PLANT LIST. ALL PLANTS TO BE PLANTED IN AMENDED SOIL AND STAKED AS SHOWN IN DETAILS. ALL PLANT MATERIAL SHALL MEET OR EXCEED THE CODE OF STANDARDS CURRENTLY RECOMMENDED BY THE COLORADO NURSERY ACT FOR NUMBER ONE GRADE.
11. STREET AND ORNAMENTAL TREES SHALL BE PLANTED NO CLOSER THAN FORTY (40) FEET AND FIFTEEN (15) FEET RESPECTIVELY FROM STREET LIGHTS. NO TREES SHALL BE PLANTED WITHIN TEN (10) FEET FROM WATER AND SEWER LINES, FOUR (4) FEET FROM GAS, TELEPHONE AND ELECTRIC UTILITIES, AND TEN (10) FEET FROM ANY DRIVEWAY.
12. MINIMUM CLEARANCE OF THREE (3) FEET ON EACH SIDE OF FIRE DEPARTMENT CONNECTION (FDC). NO VEGETATION OTHER THAN TURF OR GROUND COVERS PLANTED IN FRONT OF FDC.
13. IF TREES OR SHRUBS ARE LOCATED ON TOP OF FIELD VERIFIED UTILITIES, CONTRACTOR SHALL NOTIFY OWNER BEFORE ANY DIGGING HAS COMMENCED. VERIFY WITH OWNER IF AND WHICH SHRUBS OR OR TREES SHALL BE TAKEN OUT OF PROJECT CONTRACT OR RELOCATED.
14. NO TREE SHALL BE PLACED WITHIN 30' OF STOP SIGNS.
15. IF PLANTS ARE IN NEED OF REPLACEMENT DUE TO DECLINING HEALTH, DISEASE, OR DEATH, THE PLANTS MUST BE REPLACED WITH THE ORIGINALS SPECIES UNLESS APPROVED BY THE TOWN.
16. CHANGES IN PLANT SPECIES, OF PLANT LOCATIONS FROM WHAT IS LISTED ON THE LANDSCAPE PLAN WILL REQUIRE THE APPROVAL OF THE TOWN PRIOR TO INSTALLATION OF REPLACEMENT. OVERALL QUANTITY AND QUALITY TO BE CONSISTENT WITH THE APPROVED PLANS. IN THE EVENT OF CONFLICT WITH THE QUANTITIES INCLUDED IN THE PLANT LIST, SPECIES AND QUANTITIES SHALL BE PROVIDED.
17. ALL PLANT MATERIAL SHALL HAVE ALL WIRE, TWINE, BASKETS, BURLAP, AND ALL OTHER NON-BIODEGRADABLE CONTAMINANT MATERIAL REMOVED FROM THE CANOPY, TRUNK AND OR ROOT BALL OF THE PLANT, PRIOR TO PLANTING.
18. ALL SHRUB BEDS SHALL HAVE A MINIMUM 3" DEPTH OF A MIX OF 40% 1" AND 60% 2" COBBLE MIX. ONLY AREAS INDICATED ON PLAN WILL HAVE LAYER OF LANDSCAPE FABRIC OR APPROVED EQUAL INSTALLED WITH 6" OVERLAP AT SEAMS WITH 4" STAPLES 4" OC. IN ALL DIRECTIONS AND ALONG EDGES.
19. UNIFORMLY COMPACT AND FINE GRADE SOD GRASS AREAS AND PLANTING BEDS TO A SMOOTH SURFACE, FREE FROM IRREGULAR SURFACE CHANGES. CUT OUT SOFT SPOTS, FILL IN LOW SPOTS AND TRIM HIGH SPOTS TO COMPLY WITH REQUIRED GRADE TOLERANCES.
20. EDGING SHALL BE INSTALLED BETWEEN ALL TURF AREAS AND SHRUB BEDS AND SHALL BE HEAVY DUTY, ROLL TOP STEEL EDGING MIN. 1"x4" AND SHALL BE SET LEVEL WITH THE TOP OF THE ADJACENT SOD'S THATCH LINE. NO EDGING SHALL BE USED BETWEEN CEDAR MULCH AND COBBLE TRANSITIONS.
21. NATIVE SEED AREAS SHALL BE AMENDED TO A DEPTH OF SIX (6) INCHES BY TILLING, DISCING OR OTHER SUITABLE METHOD, AT A RATE OF AT LEAST ONE (1) CUBIC YARD OF SOIL AMENDMENT PER ONE THOUSAND (1,000) SQUARE FEET OF LANDSCAPED AREA.

1. ALL DISTURBED AREAS SHALL BE SEEDED AS INDICATED ON PLANS.
2. PREPARE AND AMEND SOIL PER STANDARD LANDSCAPE NOTES.
3. DRILL SEED OR APPROVED EQUAL ALL DISTURBED AREAS WITH SPECIFIED SEED MIX AND AT SPECIFIED RATE.
4. IMMEDIATELY FOLLOWING THE SEEDING OPERATION, ADD STRAW MULCH TO THE SEEDED AREAS AS REQUIRED BY SEEDING METHOD.
5. APPLY STRAW MULCH AT A MINIMUM OF 1.5 TONS PER ACRE OF AIR DRY MATERIAL. SPREAD STRAW MULCH UNIFORMLY OVER THE AREA WITH MECHANICAL MULCH SPREADER / CRIMPER. DO NOT MULCH WHEN WIND VELOCITY EXCEEDS 10 MPH.
6. WHEREVER THE USE OF CRIMPING EQUIPMENT IS PRACTICAL, PLACE MULCH IN THE MANNER NOTED ABOVE AND ANCHOR IT INTO THE SOIL. USE A DISC SUCH AS A MULCH TILLER, WITH A FLAT SERRATED DISC AT LEAST 1/4 INCH IN THICKNESS, HAVING DULL EDGES, AND SPACE NO MORE THAN 9 INCHES APART, WITH DISCS OF SUFFICIENT DIAMETER TO PREVENT THE FRAME OF THE EQUIPMENT FROM DRAGGING THE MULCH. ANCHOR MULCH A MINIMUM DEPTH OF 2 INCHES AND ACROSS THE SLOPE WHERE PRACTICAL WITH NO MORE THAN TWO PASSES OF THE ANCHORING EQUIPMENT.
7. UPON COMPLETION OF THE CRIMPING AND MULCHING OPERATION, THE SEEDED AREAS SHALL BE IRRIGATED, KEEPING THE TOP 2 INCHES OF SOIL EVENLY MOIST UNTIL SEED HAS UNIFORMLY GERMINATED AND GROWN TO A HEIGHT OF 2-INCHES.
8. TEMPORARY IRRIGATION / WATERING APPLICATION SHALL BE DONE IN A MANNER WHICH WILL PROVIDE UNIFORM COVERAGE BUT WHICH WILL NOT CAUSE EROSION, MOVEMENT, OR DAMAGE TO THE FINISHED SURFACE.

1. SOD TO BE 100% COLORADO GROWN TURF BLEND SPECIFICALLY GROWN FOR LOW WATER LAWN APPLICATIONS WITH MINIMUM THREE (3) IMPROVED VARIETIES OF TEXAS BLUEGRASS AND BLUEGRASS CULTIVARS GROWN IN COLORADO OR AS SPECIFIED AND HAVING A HEALTHY VIGOROUS ROOT SYSTEM. ONCE TURF IS LAID, IT SHALL BE PROPERLY ROLLED, COMPACTED AND PUSHED TOGETHER TO ELIMINATE ANY GAPS BETWEEN ROLLED EDGES. APPLY FERTILIZER IN THESE AREAS PER SOD FARM'S RECOMMENDATIONS.

PAWNEE BUTTES DRYLAND AGGRESSIVE PASTURE MIX #2 OR APPROVED
EQUAL.

20 PLS lbs/ACRE (PLEASE NOTE THIS IS DOUBLE THE RECOMMENDED
RATE)

(33.3%) CRESTED WHEATGRASS
(33.3%) RUSSIAN WILDRYE
(33.3%) WESTERN WHEATGRASS

Schedule											
Symbol	Label	Image	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage	Plot
	S2r3		1	Lithonia Lighting	DSX1 LED P4 30K T3M MVOLT	DSX1 LED P4 30K T3M MVOLT	1	13064	1	250	
	S1r3		1	Lithonia Lighting	DSX1 LED P4 30K T3M MVOLT	DSX1 LED P4 30K T3M MVOLT	1	13064	1	125	
	S2r390		2	Lithonia Lighting	DSX1 LED P4 30K T3M MVOLT	DSX1 LED P4 30K T3M MVOLT	1	13064	1	250	
	S4r3		3	Lithonia Lighting	DSX1 LED P4 30K T3M MVOLT	DSX1 LED P4 30K T3M MVOLT	1	13064	1	500	
	C		16	Gotham Architectural Lighting	EVO6WC 30/15 AR ND LSS	EVO 6IN CYLINDER, WALL MOUNT, 80 CRI, 3000K, 1500LM, NARROW DIST, CLEAR, SEMI-SPEC	1	1503	1	14.7	

Note

Lighting calculation software is for estimating purposes only, not generating exact values.

These calculations are for the use and adoption by our clients and theirs' solely at their discretion.
This includes evaluation of the calculated lighting levels and model by the Architect, Engineer, Lighting Designer or Owner for adherence to the project's lighting specifications for levels and uniformity.

We make no guarantees of meeting any subjective expectations. Calculations are based on a model only. Space characteristics and electrical supply to fixtures, along with installation details, may alter fixture output and model performance. Model is based on standard reflectance values unless otherwise noted.

Any variance from reflectance values, obstructions, light loss factors (including both physical and electrical in nature) or dimensional data will affect the actual light levels obtained.

Final construction drawings and calculations are the responsibility of a licensed architect or engineer.

The Lighting Agency provides these calculations as a courtesy for evaluation only.

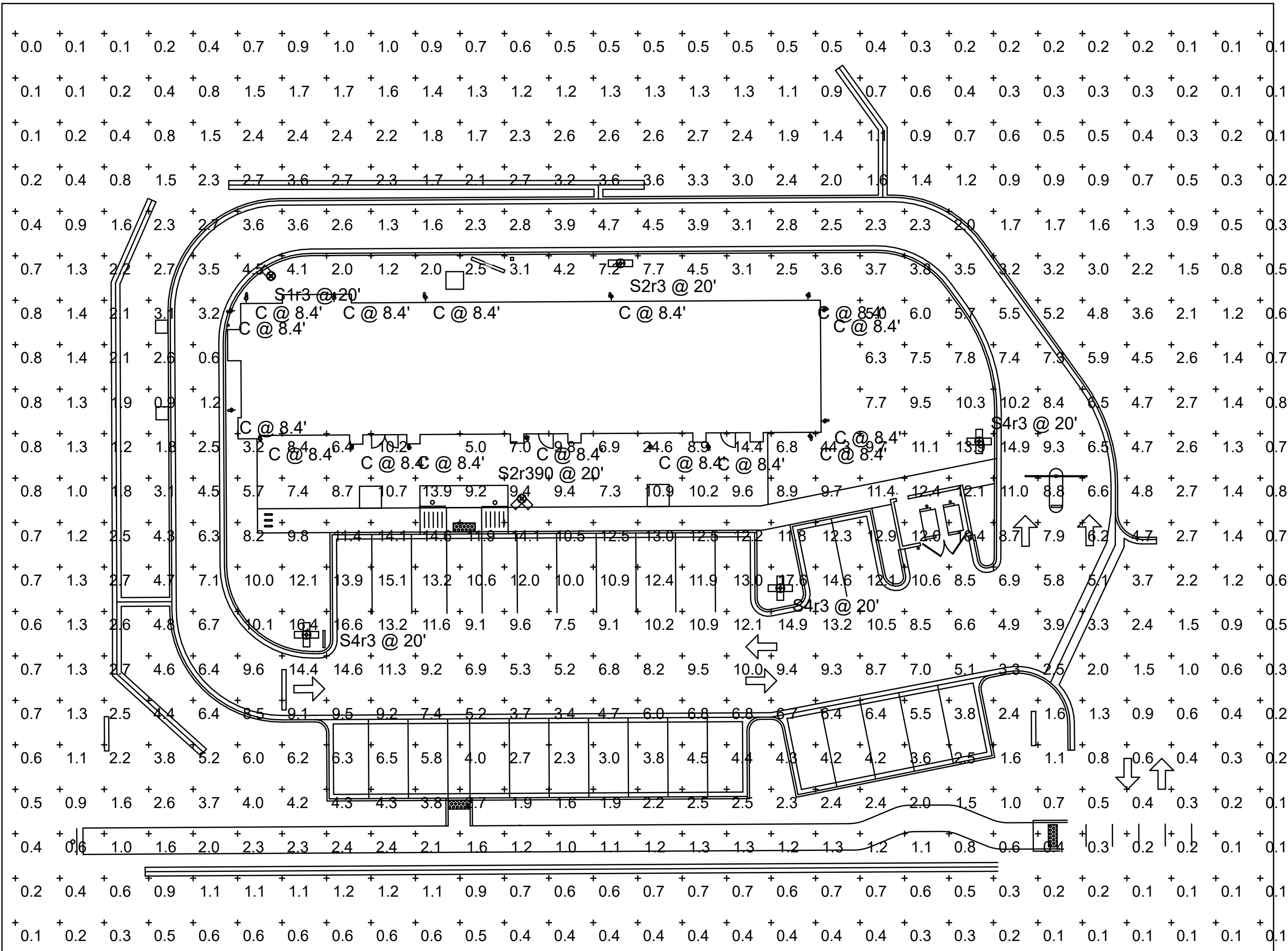
Luminaire Locations											
		Location						Aim			
No.	Label	X	Y	Z	MH	Orientation	Tilt	X	Y	Z	
1	S1r3	3162.75	1750.50	20.00	20.00	315.40	0.00	3161.83	1751.44	0.00	
1	S2r3	3241.75	1754.75	20.00	20.00	180.00	0.00				
1	S2r390	3200.50	1704.75	20.00	20.00	180.00	0.00				
2	S2r390	3228.75	1704.50	20.00	20.00	90.00	0.00				
1	S4r3	3277.75	1680.50	20.00	20.00	0.00	0.00				
2	S4r3	3169.75	1670.00	20.00	20.00	0.00	0.00				
3	S4r3	3323.50	1714.25	20.00	20.00	0.00	0.00				
1	C	3177.50	1746.50	8.40	8.40	0.00	0.00	3177.50	1746.76	0.00	
2	C	3157.75	1746.50	8.40	8.40	0.00	0.00	3157.75	1746.76	0.00	
3	C	3197.75	1746.50	8.40	8.40	0.00	0.00	3197.75	1746.76	0.00	
4	C	3239.50	1746.50	8.40	8.40	0.00	0.00	3239.50	1746.76	0.00	
5	C	3284.25	1746.50	8.40	8.40	0.00	0.00	3284.25	1746.76	0.00	
6	C	3287.50	1743.75	8.40	8.40	90.00	0.00	3287.76	1743.75	0.00	
7	C	3287.75	1718.75	8.40	8.40	90.00	0.00	3288.01	1718.75	0.00	
8	C	3284.75	1715.25	8.40	8.40	180.00	0.00	3284.75	1714.99	0.00	
9	C	3261.75	1713.00	8.40	8.40	180.00	0.00	3261.75	1712.74	0.00	
10	C	3248.50	1713.25	8.40	8.40	180.00	0.00	3248.50	1712.99	0.00	
11	C	3194.25	1713.25	8.40	8.40	180.00	0.00	3194.25	1712.99	0.00	
12	C	3181.50	1713.25	8.40	8.40	180.00	0.00	3181.50	1712.99	0.00	
13	C	3221.00	1715.25	8.40	8.40	180.00	0.00	3221.00	1714.99	0.00	
14	C	3160.75	1715.25	8.40	8.40	180.00	0.00	3160.75	1714.99	0.00	
15	C	3154.50	1721.00	8.40	8.40	270.00	0.00	3154.24	1721.00	0.00	
16	C	3154.25	1743.25	8.40	8.40	270.00	0.00	3153.99	1743.25	0.00	

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1		3.8 fc	44.3 fc	0.0 fc	N/A	N/A

Note

1.file=visual-files-june2022-ziggiseverance.vsl



Plan View

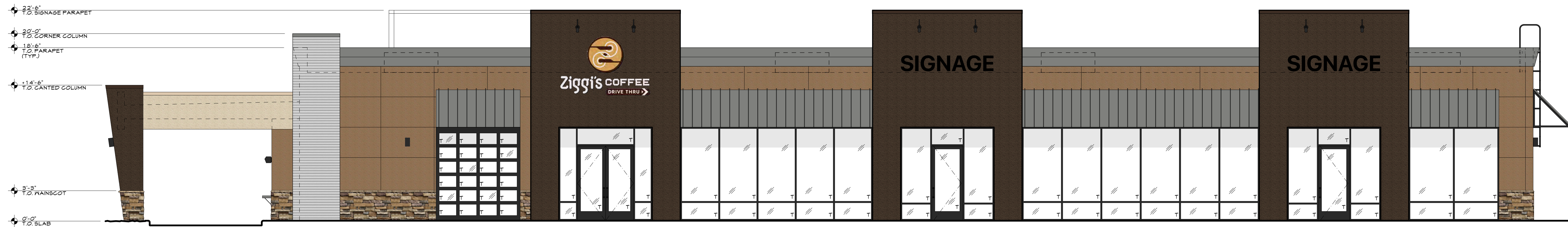
Scale - 1" = 30ft



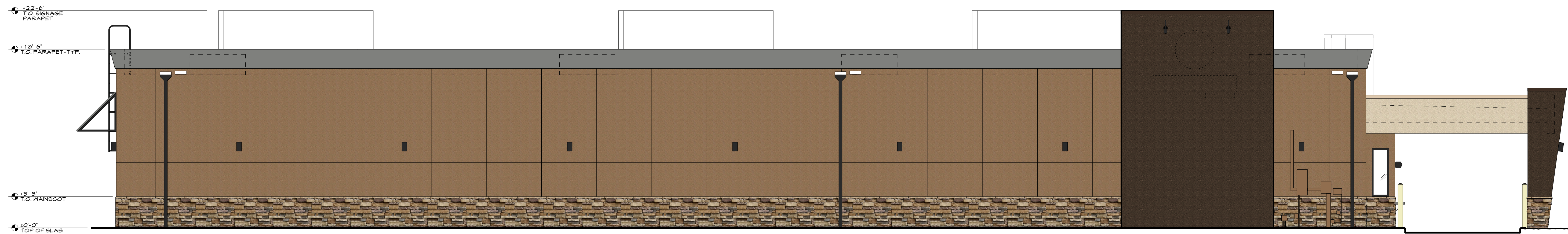
4 WEST ELEVATION
SCALE: 3/16" = 1'-0"



3 EAST ELEVATION
SCALE: 3/16" = 1'-0"



2 SOUTH ELEVATION
SCALE: 3/16" = 1'-0"



1 NORTH ELEVATION
SCALE: 3/16" = 1'-0"

Ziggi's Coffee

Traffic Impact Study

American Eagle Properties

Severance, Colorado

December 9, 2022

Prepared By:



Sustainable Traffic Solutions, Inc.

<http://www.sustainabletrafficsolutions.com/>

Joseph L. Henderson, PE, PTOE

303.589.6875

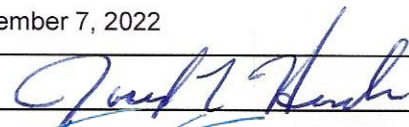
joe@sustainabletrafficsolutions.com

Transportation Impact Study

Base Assumptions Form

Project Information					
Project Name: Ziggi's Coffee					
Project Location: north side of Harmony Road and west of the Dollar General					
TIS Assumptions					
Type of Study	Master:	Full: ☒	Intermediate:	Memo:	No TIS Req:
Study Area Boundaries	North:	South:	East: Teller Street	West: Fox Ridge Parkway	
Study Years	Short-range: 2028 (completion in 2023)		Long Range: 2042		
Future Traffic Growth Rate	5% for through movements on Harmony Road, 2% for all other movements				
Study Intersections	1. Harmony/Fox Ridge Pkwy		5.		
	2. Harmony/site access		6.		
	3. Harmony/Teller Street		7.		
	4.		8.		
Time Period For Study	Peak Hour: Weekday morning and evening peak hours				
Trip Generation Rates	see attached trip generation estimate				
Trip Adjustment Factors	Passby: yes		Captive Market: no		
Overall Trip Distribution	See attached sketch				
Mode Split Assumptions	none				
Committed Roadway Improvements	Harmony Road is assumed to be widened to four through lanes by 2042				
Other Traffic Studies	N/A				
Areas Requiring Special Study					
Is the project within 1 mile of a State Highway?	Yes _____ No ☒ _____				

Date: November 7, 2022

Traffic Engineer: 

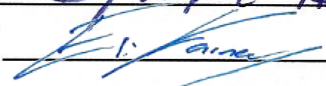
Local Entity Staff: 

Table 3. Trip Generation Estimate

Land Use	ITE Code ¹	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Coffee/Donut Shop with a Drive Through Window	937	1.5	1,000 ft ²	533.57	800	400	400	85.88	129	66	63	38.99	58	29	29
Strip Retail Plaza (<40k)	822	2.5	1,000 ft ²	54.45	136	68	68	2.36	6	4	2	6.59	16	8	8
Total	---	---	---	---	936	468	468	---	135	69	65	---	75	37	37

Pass-By Trips ^{2, 3}

Land Use	Trip Type	Morning Peak Hour				Evening Peak Hour			
		%	Total	In	Out	%	Total	In	Out
Coffee/Donut Shop with a Drive Through Window	Pass-By	90%	---	59	57	98%	---	29	29
	Non-Pass-By	10%	---	7	6	2%	---	1	1

Notes:

1. The trip generation estimate is based on rates contained in [Trip Generation, 11th Edition](#) (Institute of Transportation Engineers, September 2021).
2. Pass-by trips were estimated using information that is contained in the [Trip Generation Handbook](#) (Institute of Transportation Engineers, September 2017).
3. The [Trip Generation Handbook](#) doesn't include pass-by rates for the coffee/donut shop with a drive through window, so pass-by rates for coffee/donut shop with drive-through window and no indoor seating were used.

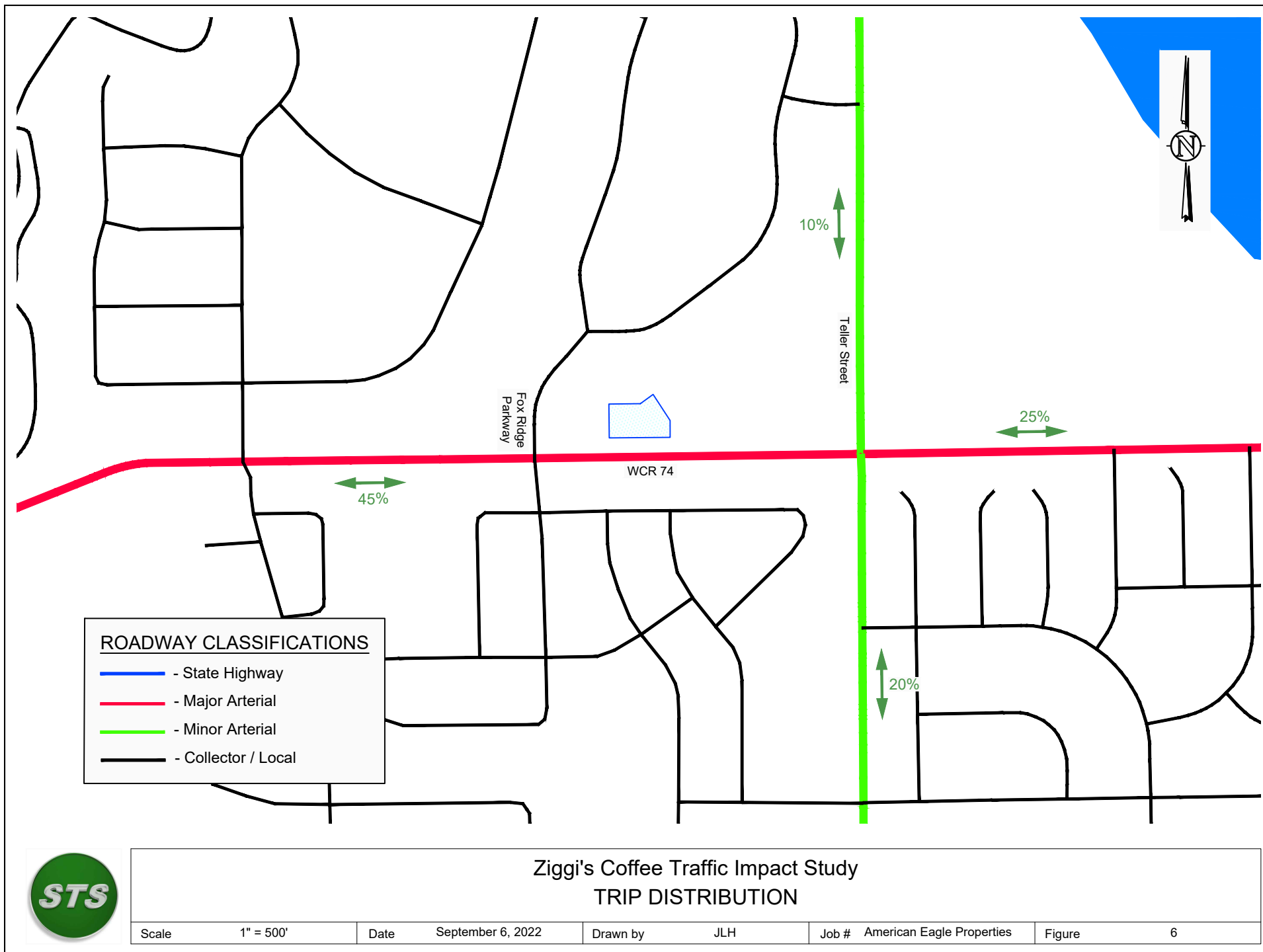


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Ziggi's Coffee

Traffic Impact Study

1.0 Introduction

A 4,000 ft² retail building is planned on the north side of East Harmony Road at 9843 East Harmony Road in Severance. The building will include a 1,500 ft² Ziggi's Coffee shop and 2,500 ft² of additional retail space. The project is expected to be completed and occupied by the Year 2023. A vicinity map is contained in Figure 1, and Figure 2 contains a site plan. The development will share an access to East Harmony Road with the Dollar General that exists east of the site.

This study has been prepared in conformance with Town of Severance requirements for traffic studies¹. A Full TIS is necessary based on the Town's requirements.

2.0 Project Description

2.1 Study Area

The study area includes the following intersections.

- East Harmony Road / Fox Ridge Parkway / Muntjac Street
- East Harmony Road / site access
- East Harmony Road / Teller Street

The existing laneage and traffic control are contained in Figure 3.

The classifications shown in Figure 1 are based on Figure 11 of the Severance Transportation Plan². East Harmony Road is classified as a major arterial roadway, and Teller Street is classified as a minor arterial roadway. All other streets in the vicinity of the site are classified as local streets.

2.2 Study Assumptions

The following assumptions were utilized for this study.

Short-Term Planning Horizon. The development is expected to be completed and occupied in the Year 2023. Considering the Town's requirement that the short-term horizon be five years following the completion of the development, the short-term planning horizon is Year 2028.

Long-Term Planning Horizon. The long-term planning horizon is Year 2042 because it is 20 years in the future.

¹ Criteria for the Development of Transportation Impact Studies. Town of Severance. September 2021.

² Severance Transportation Plan. Town of Severance. Adopted June 22, 2021.

Growth in Background Traffic. The following growth rates were used based on the Town's standards.

- East Harmony Road – 5.0%
- Teller Street – 2.0%
- Fox Ridge Parkway / Muntjac Street – 0%

Saturation Flow Rate. The saturation flow rate was assumed to be 1,900 passenger cars / hour / lane which is typical in urban areas.

Improvements to Adjacent Roadways. The following improvements were assumed in the traffic study.

- East Harmony Road is planned as a four-lane major arterial roadway. It currently has one through lane in each direction with a center left turn lane. The roadway is assumed to be expanded to four through lanes by the Year 2042.

Peak Hour Factor (PHF). For the Year 2022 and the short-term planning horizon, the PHF was based on the data collected for the traffic study. The PHF for the access to the development was assumed to be 0.85 in the short-term planning horizon. For the long-term planning horizon, the PHF was assumed to be 0.92 for all movements unless the Year 2022 PHF is higher than 0.92. In that case, the Year 2022 PHF was used in the analysis of the long-term volumes.

Traffic Signal Timing. The traffic signal timing for East Harmony Road / Teller Street was obtained from the Town for use in the analysis.

Truck Percentage. Vehicle classification data were collected on East Harmony Road east of Fox Ridge Parkway. The data were processed by Miovision, and the following FHWA vehicle classifications apply to the Miovision categories; Lights - 1 through 3, Mediums - 4 through 7, Trucks - 8 through 13. It shows that there were 2% trucks on the roadway, so the truck percentage was assumed to be 2% for all movements. The following table summarizes the data collected for the study. The data are contained in Appendix A.

Direction	Lights	Mediums	Trucks	Total	% Trucks
Eastbound	5,257	81	20	5,358	2%
Westbound	5,096	73	19	5,188	2%
Total	10,353	154	39	10,546	2%

3.0 Existing Conditions

3.1 Existing Traffic Volumes

Traffic count data for the study were collected on Thursday June 2, 2022 by All Traffic Data (see Appendix A). The existing and future daily volumes are

summarized in Table 1, and the existing peak hour volumes are contained in Figures 4 and 5.

3.2 Level of Service Analysis

To evaluate the performance of the intersections within the study area, the level of service (LOS) was calculated using PTV VISTRO software. This software package utilizes criteria described in the Highway Capacity Manual³. LOS is a measure used to describe operational conditions at an intersection. LOS categories ranging from A to F are assigned based on the predicted delay in seconds per vehicle for the intersection as a whole, as well as for individual turning movements. LOS A indicates very good operations, and LOS F indicates poor, congested operations. In Severance, thresholds for acceptable level of service are LOS A through LOS D.

The results of the analysis are summarized in the following table. It shows that all of the intersections are operating at acceptable levels of service. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value.

Existing Traffic Conditions

Intersection	Control	Peak Hour	
		Morning	Evening
1 - East Harmony Road / Fox Ridge Parkway	Side-Street Stop	C	D
2 - East Harmony Road / Site Access	Side-Street Stop	B	B
3 - East Harmony Road / Teller Street	Signalized	B	B

The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix B.

4.0 Site Generated Traffic Volumes

4.1 Trip Generation

In order to estimate the traffic impacts associated with the development, the amount of traffic that is expected to be generated was estimated using trip generation rates contained in the Institute of Transportation Engineers Trip Generation manual⁴. The trip generation estimate is contained in Table 3.

Not all of the trips generated by commercial developments represent new trips added to the adjacent street network. Pass-by trips are made by motorists already using the street network as intermediate stops on the way to a primary trip destination without diverting from the route. Therefore, these trips are deducted from the traffic passing by the site. They were estimated using information from the Trip Generation

³ Highway Capacity Manual, 7th Edition. National Academy of Sciences, Engineering, and Medicine. 2022.

⁴ Trip Generation, 11th Edition. Institute of Transportation Engineers. September 2021.

Handbook, 3rd Edition⁵. Pass-by rates for a coffee/donut shop with a drive-through window and no indoor seating were used because the Trip Generation Handbook doesn't include pass-by rates for the coffee/donut shop with a drive through window. The pass-by trips for the Ziggi's Coffee shop are also contained in Table 3.

4.2 Trip Distribution and Assignment

The trip distribution for the development is contained in Figure 6. It is based on the relative volumes on the adjacent roadways. The peak hour trip assignments are contained in Figures 7 and 8. The pass-by traffic is included in these figures.

5.0 Year 2028 Traffic Volumes

Construction and occupancy of the development is expected to be completed in the Year 2023. Considering the Town's requirement that the short-term horizon be evaluated five years after completion, traffic volumes for the Year 2028 were analyzed for this planning horizon. Background traffic volumes for the Year 2028 were developed by inflating the existing traffic volumes by the annual growth rates that were discussed in Section 2.2. The background traffic volume scenarios are contained in Figures 9 and 10. The total traffic volume scenarios were developed by adding the trip assignment to the background volumes. The Year 2028 total traffic volume scenarios are contained in Figures 11 and 12.

The results of the analysis of the background and total traffic volume scenarios are summarized in the following table. It shows that the Fox Ridge Parkway / Muntjac Street and site access intersections are expected to operate below the acceptable level of service D. It isn't unusual for side-street stop-control intersections on an arterial street to operate poorly. The laneage and traffic control contained in Figure 3 were assumed in the analysis.

Year 2028 Traffic Conditions

Intersection	Control	Background		Total	
		Morning	Evening	Morning	Evening
1 - East Harmony Road / Fox Ridge Parkway	Side-Street Stop	D	F	E	F
2 - East Harmony Road / Site Access	Side-Street Stop	C	B	D	E
3 - East Harmony Road / Teller Street	Signalized	B	B	B	B

The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix B.

6.0 Year 2042 Traffic Volumes

The Year 2042 traffic volume scenarios were developed in the same manner as the Year 2028 traffic volume scenarios. The background traffic volume scenarios are

⁵ Trip Generation Handbook, 3rd Edition. Institute of Transportation Engineers. September 2017.

contained in Figures 13 and 14, and the total traffic volume scenarios are contained in Figures 15 and 16.

The results of the analysis of the background and total traffic volume scenarios are summarized in the following table. It shows that the Fox Ridge Parkway / Muntjac Street and site access intersections are expected to operate below the acceptable level of service D. It isn't unusual for side-street stop-control intersections on an arterial street with to operate poorly. The laneage and traffic control assumed in the analysis of the background and total traffic volume scenarios are contained in Figure 17.

Year 2042 Traffic Conditions

Intersection	Control	Background		Total	
		Morning	Evening	Morning	Evening
1 - East Harmony Road / Fox Ridge Parkway	Side-Street Stop	F	F	F	F
2 - East Harmony Road / Site Access	Side-Street Stop	C	B	F	F
3 - East Harmony Road / Teller Street	Signalized	B	B	B	B

The detailed analysis results are summarized in Table 2 and the VISTRO analysis results are contained in Appendix B.

7.0 Auxiliary Lanes at the Site Access

Deceleration lanes exist for the eastbound left turn and westbound right turn movements at the site access. Analysis was performed to determine if the right turn deceleration lane will be necessary when East Harmony Road is expanded to four through lanes. The need for the right turn deceleration lane was reviewed using Detail No. S-51 from the City of Greeley standards⁶. The speed limit on East Harmony Road is 40 MPH and the approximate threshold where a right turn deceleration lane is necessary at that speed limit is 50 VPH. This threshold is not expected to be exceeded during either peak hour, therefore, a westbound right turn deceleration lane will not be warranted when East Harmony Road is expanded to four lanes.

8.0 Multi-Modal Considerations

The following bullets discuss the multi-modal facilities near the site.

- **Pedestrians.** The site plan shows the continuation of the detached sidewalk across the site. Also shown on the site plan is a marked pedestrian path from the detached walk to the front of the building.

⁶ Design Criteria and Construction Specifications – Street, Volume I. City of Greeley Department of Public Works. July 2015.

-
- **Bicycle Lane.** Based on the East Harmony Road / WCR 74 and 1st Street / WCR 23 Corridor Plans⁷, on-street bicycle lanes are planned on Harmony Road.
 - **Transit.** There is no transit in Severance.

9.0 Pedestrian and Bicycle Destinations Near the Development

Figure 18 identifies the pedestrian and bicycle destinations within a 1,320' radius of the development. The Ziggi's Coffee site is surrounded by residential development, however, the sidewalk connections are lacking that would allow pedestrians to walk to Ziggi's.

10.0 Drive-Through Queue at Ziggi's Coffee

The average queue length for the drive-through lane was estimated using the Poisson distribution. Based on information provided by Ziggi's Coffee, about 70% of the orders are expected to come from the drive-through lane and those orders are processed in an average of three minutes. Table 3 shows that 66 inbound vehicles are expected during the morning peak hour and 29 inbound vehicles during the evening peak hour. Therefore, the morning peak hour is the critical time for the drive-through queue analysis. The volume of traffic using the drive-through during the morning peak hour will be approximately 46 vehicles.

The site plan contained in Figure 2 highlights the critical elements for the drive-through queue analysis. It shows one order station and one window where payment is made and drinks are delivered. The drive-through lane has capacity for approximately 15 vehicles waiting to order including the vehicle at the order station, and there is room for five vehicles past the order station including the vehicle at the window. The analysis shows that there will be roughly 15 vehicles waiting to order and two past the order station. Based on this analysis, the average drive-through queue is not expected to exceed the capacity of the drive-through lane.

11.0 Conclusions

STS has drawn the following conclusions based on the analysis performed for this project.

Intersection Operation

East Harmony Road / Teller Street. This signalized intersection is currently operating at LOS B during the morning and evening peak hours. By the Year 2042, it is expected to continue to operate at LOS B.

East Harmony Road / Fox Ridge Parkway. This side-street stop-controlled intersection is operating at LOS C and LOS D. The operation is expected to

⁷ East Harmony Road / WCR 74 and 1st Street / WCR 23 Corridor Plans. Town of Severance. Adopted March 2022.

decrease to LOS F by the Year 2042. It isn't unusual for side-street stop-control intersections on an arterial street with to operate poorly.

East Harmony Road / Site Access. This side-street stop-controlled intersection is operating at LOS B during the morning and evening peak hours. By the Year 2042, it is expected to operate at LOS F. It isn't unusual for side-street stop-control intersections on an arterial street with to operate poorly.

Auxiliary Lanes

A right turn deceleration lane will not be required at the site access when East Harmony Road is expanded to four through lanes.

Drive-Through Queue Operation

The operation of the drive-through queue was evaluated using the Poisson distribution. The analysis showed that the average queue is not expected to exceed the capacity of the drive-through lane.

Tables

Table 1 – Estimated Daily Volumes for Key Links in the Study Area

Table 2 – Intersection Operational Summary

Table 3 – Trip Generation Estimate

Table 1. Estimated Daily Volumes for Key Links in the Study Area

Link	Year 2022	Development Traffic	Year 2028 Background	Year 2028 Total	Year 2042 Background	Year 2042 Total
East Harmony Road west of Fox Ridge Parkway	11,230	420	15,050	15,470	29,380	29,800
East Harmony Road between Fox Ridge Parkway and the Site Access	10,546	420	14,130	14,550	27,560	27,980
East Harmony Road between the Site Access and Teller Street	10,546	520	14,130	14,650	27,460	27,980
East Harmony Road east of Teller Street	7,050	230	9,450	9,680	18,480	18,710
Teller Street north of East Harmony Road	640	90	720	810	860	950
Teller Street south of East Harmony Road	4,430	190	4,990	5,180	6,390	6,580
Ziggi's Coffee / Dollar General Site Access	290	940	290	1,230	290	1,230

Note

1. The existing volumes collected for the study are highlighted in yellow. All other existing volumes were estimated based on the peak hour to daily ratio for the evening peak hour.

Table 2. Intersection Operational Summary

Signalized Intersections ¹	Year 2022				Year 2028 Background				Year 2028 Total				Year 2042 Background				Year 2042 Total			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
3 - East Harmony Road / Teller Street	16.5	B	14.3	B	17.6	B	16.0	B	18.5	B	16.6	B	14.8	B	13.9	B	15.4	B	14.2	B
Stop-Controlled Intersections ²	Year 2022				Year 2028 Background				Year 2028 Total				Year 2042 Background				Year 2042 Total			
	Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening		Morning		Evening	
	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1 - East Harmony Road / Fox Ridge Parkway	20.2	C	30.3	D	31.7	D	58.5	F	36.4	E	62.9	F	77.0	F	793.3	F	83.8	F	846.7	F
	NBLT		NBLT		NBLT		NBLT		NBLT		NBLT		SBLT		NBLT		SBLT		NBLT	
2 - East Harmony Road / Site Access	12.9	B	11.1	B	15.7	C	12.4	B	27.0	D	47.8	E	16.4	C	12.8	B	165.9	F	146.4	F
	SBRT		SBRT		SBRT		SBRT		SBLT		SBLT		SBRT		SBRT		SBLT		SBLT	

Notes

1. The level of service for signalized intersections is based on the delay for the entire intersection.
2. The level of service for intersections with side-street stop-control is determined by the movement with the highest delay value.

Table 3. Trip Generation Estimate

Land Use	ITE Code ¹	Size	Unit	Average Daily Trips				Morning Peak Hour Trips				Evening Peak Hour Trips			
				Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Coffee/Donut Shop with a Drive Through Window	937	1.5	1,000 ft ²	533.57	800	400	400	85.88	129	66	63	38.99	58	29	29
Strip Retail Plaza (<40k)	822	2.5	1,000 ft ²	54.45	136	68	68	2.36	6	4	2	6.59	16	8	8
Total	---	---	---	---	936	468	468	---	135	69	65	---	75	37	37

Pass-By Trips ^{2, 3}

Land Use	Trip Type	Morning Peak Hour				Evening Peak Hour			
		%	Total	In	Out	%	Total	In	Out
Coffee/Donut Shop with a Drive Through Window	Pass-By	83%	---	55	52	89%	---	26	26
	Non-Pass-By	17%	---	11	11	11%	---	3	3

Notes:

1. The trip generation estimate is based on rates contained in [Trip Generation, 11th Edition](#) (Institute of Transportation Engineers, September 2021).
2. Pass-by trips were estimated using information that is contained in the [Trip Generation Handbook](#) (Institute of Transportation Engineers, September 2017).
3. The [Trip Generation Handbook](#) doesn't include pass-by rates for the coffee/donut shop with a drive through window, so pass-by rates for coffee/donut shop with drive-through window and no indoor seating were used.

Figures

Figure 1 – Vicinity Map

Figure 2 – Site Plan

Figure 3 – Laneage and Traffic Control – Existing

Figure 4 – Existing Traffic Volumes – Morning Peak Hour

Figure 5 – Existing Traffic Volumes – Evening Peak Hour

Figure 6 – Trip Distribution

Figure 7 – Trip Assignment – Morning Peak Hour

Figure 8 – Trip Assignment – Evening Peak Hour

Figure 9 – Year 2028 Background Traffic Volumes – Morning Peak Hour

Figure 10 – Year 2028 Background Traffic Volumes – Evening Peak Hour

Figure 11 – Year 2028 Total Traffic Volumes – Morning Peak Hour

Figure 12 – Year 2028 Total Traffic Volumes – Evening Peak Hour

Figure 13 – Year 2042 Background Traffic Volumes – Morning Peak Hour

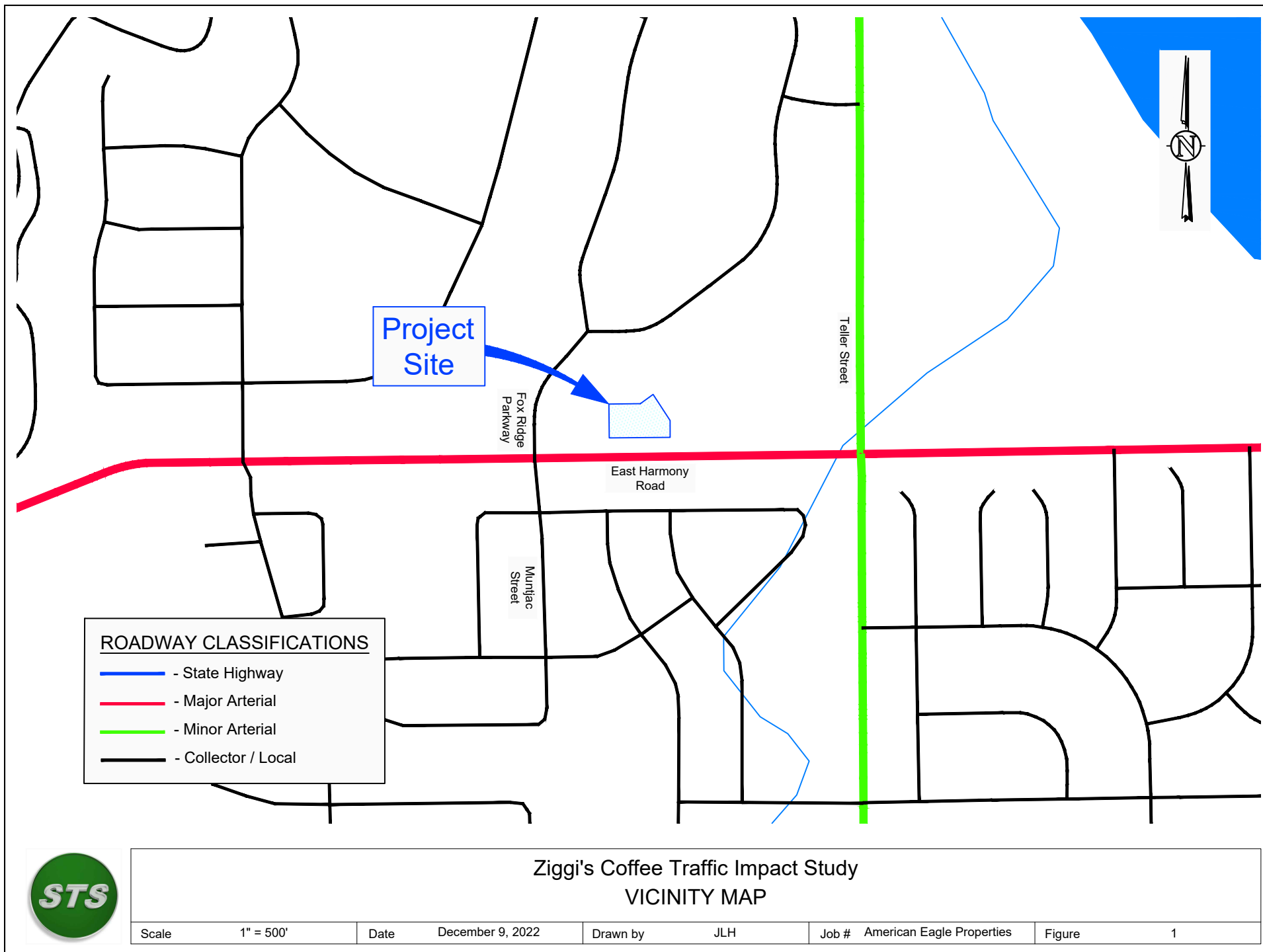
Figure 14 – Year 2042 Background Traffic Volumes – Evening Peak Hour

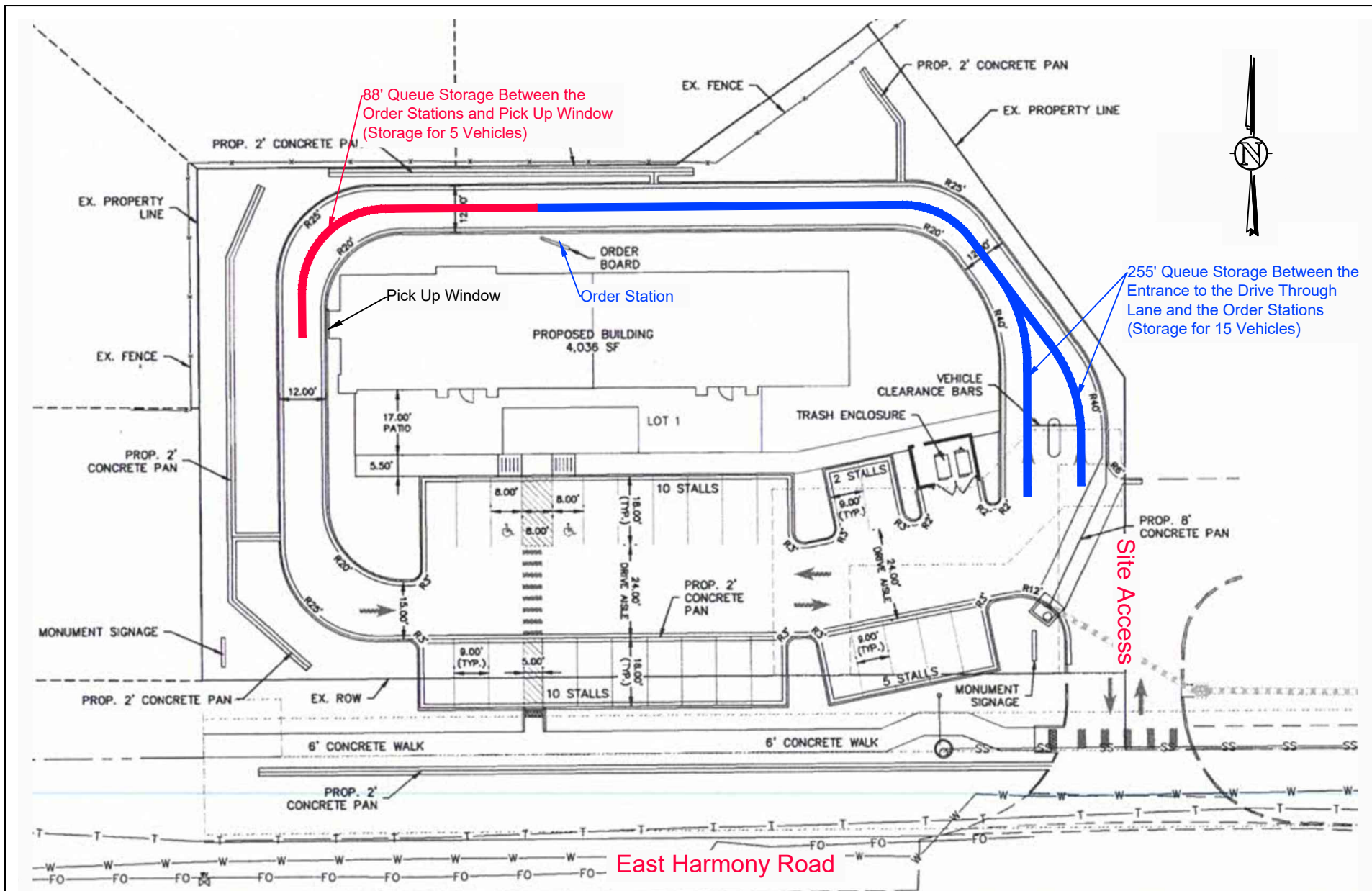
Figure 15 – Year 2042 Total Traffic Volumes – Morning Peak Hour

Figure 16 – Year 2042 Total Traffic Volumes – Evening Peak Hour

Figure 17 – Laneage and Traffic Control – Year 2042 Traffic Volume Scenarios

Figure 18 – Pedestrian and Bicycle Destinations within 1,320' of the Site





Ziggi's Coffee Traffic Impact Study SITE PLAN

Scale	NTS	Date	December 9, 2022	Drawn by	JLH	Job #	American Eagle Properties	Figure	2
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Figure 3 – Laneage and Traffic Control – Existing

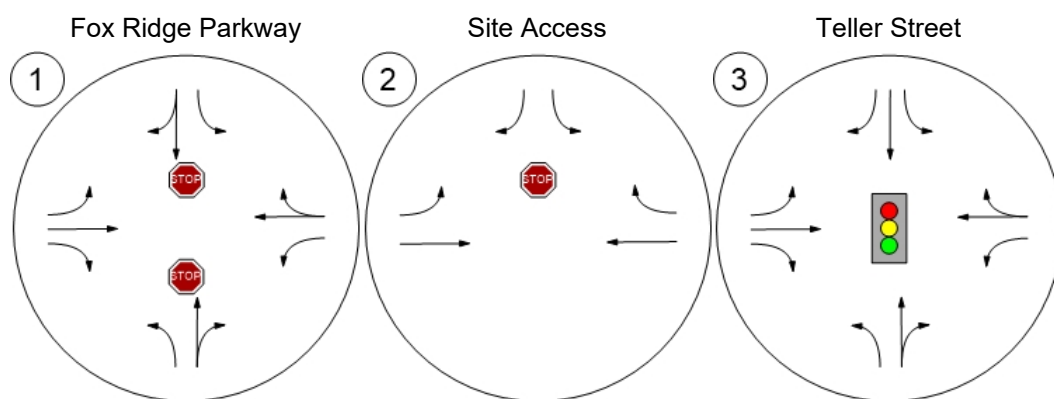


Figure 4 – Existing Traffic Volumes – Morning Peak Hour

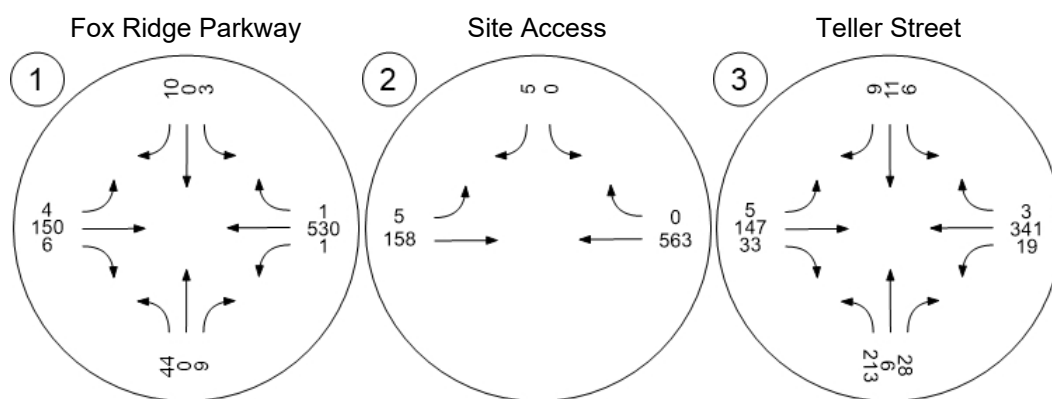
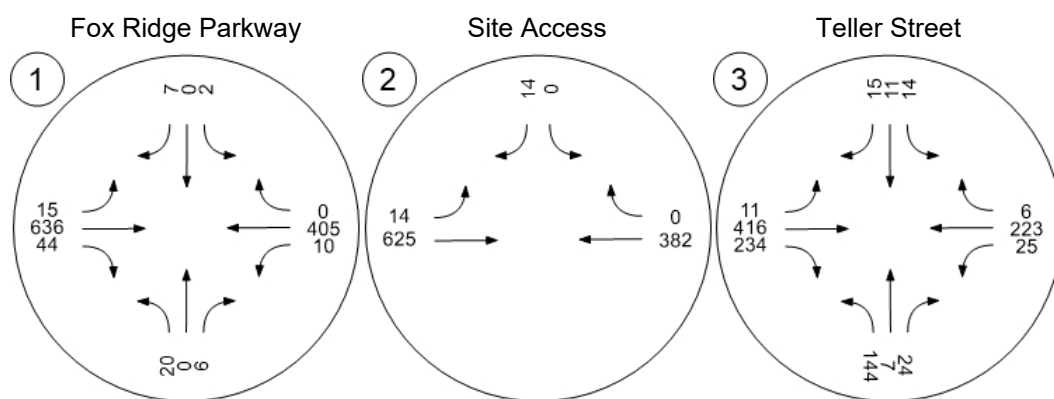


Figure 5 – Existing Traffic Volumes – Evening Peak Hour



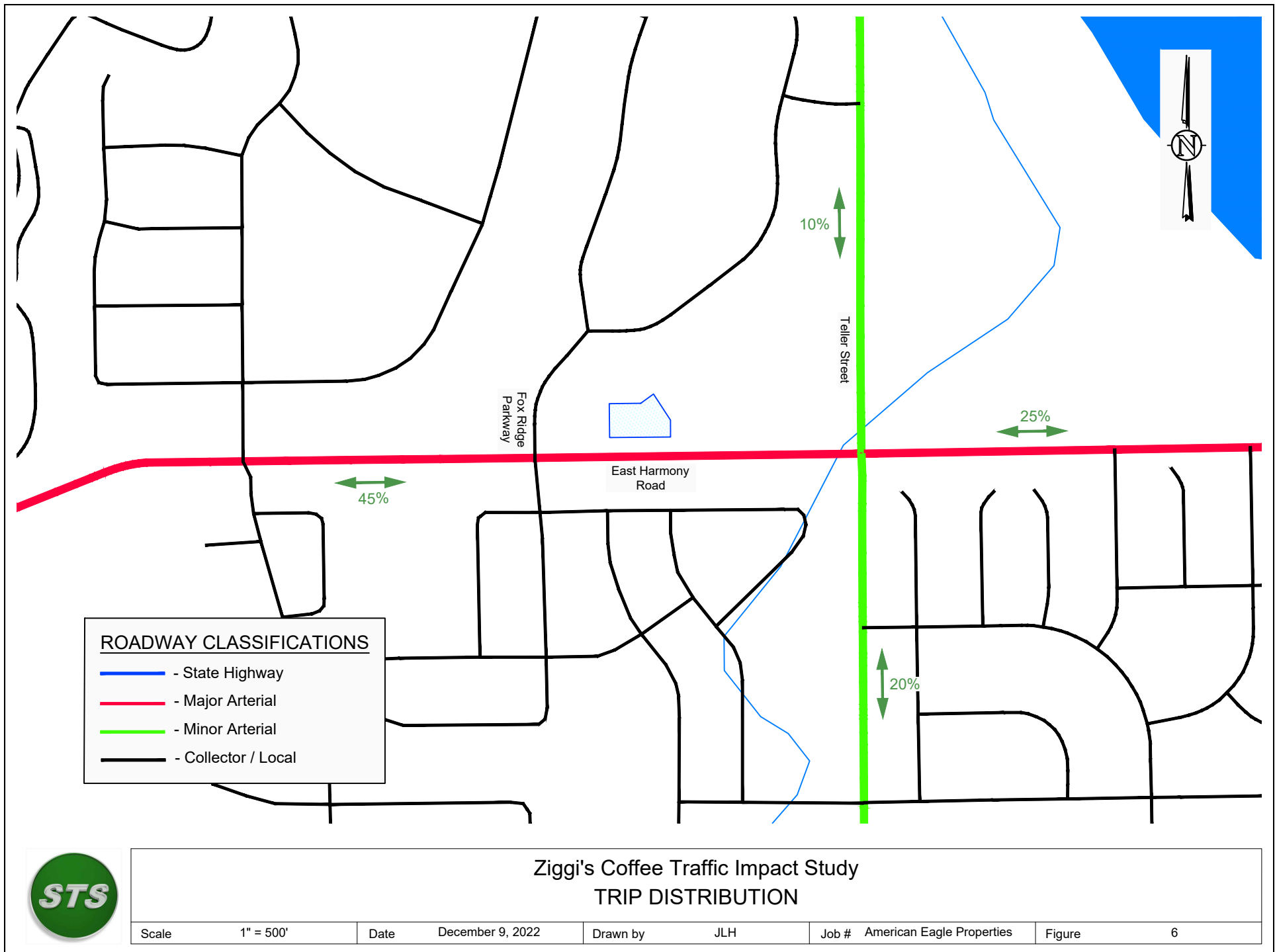


Figure 7 – Trip Assignment – Morning Peak Hour

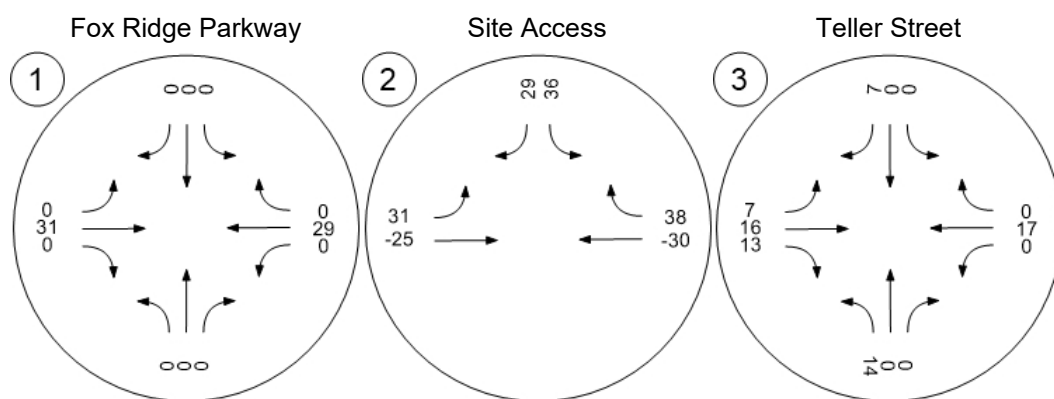


Figure 8 – Trip Assignment – Evening Peak Hour

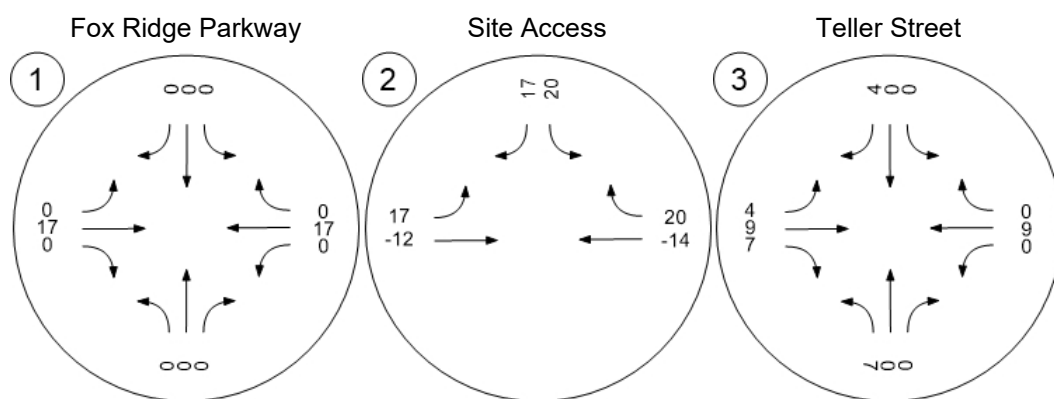


Figure 9 – Year 2028 Background Traffic Volumes – Morning Peak Hour

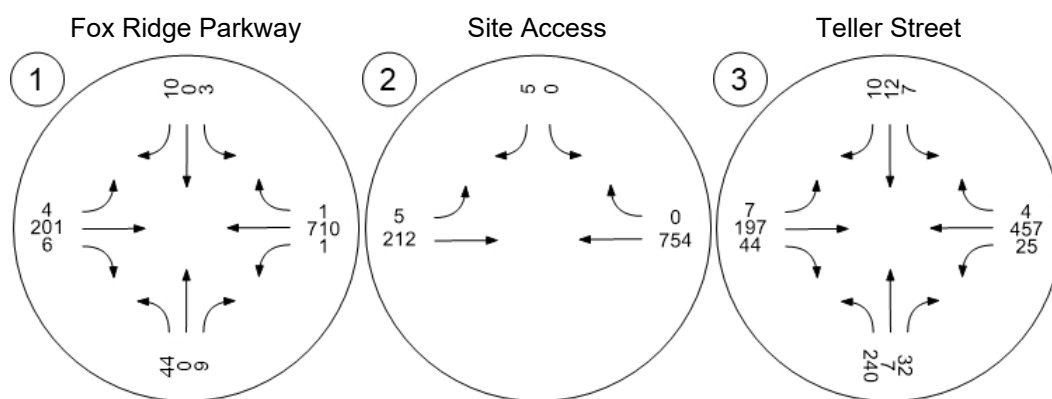


Figure 10 – Year 2028 Background Traffic Volumes – Evening Peak Hour

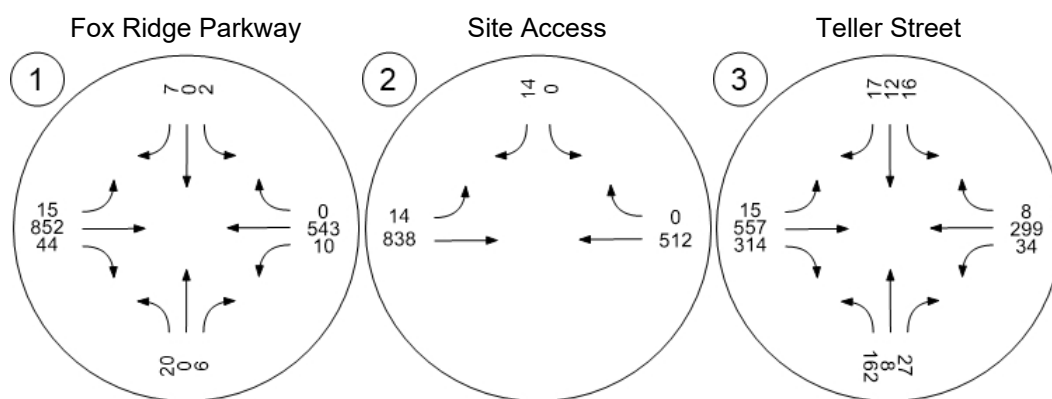


Figure 11 – Year 2028 Total Traffic Volumes – Morning Peak Hour

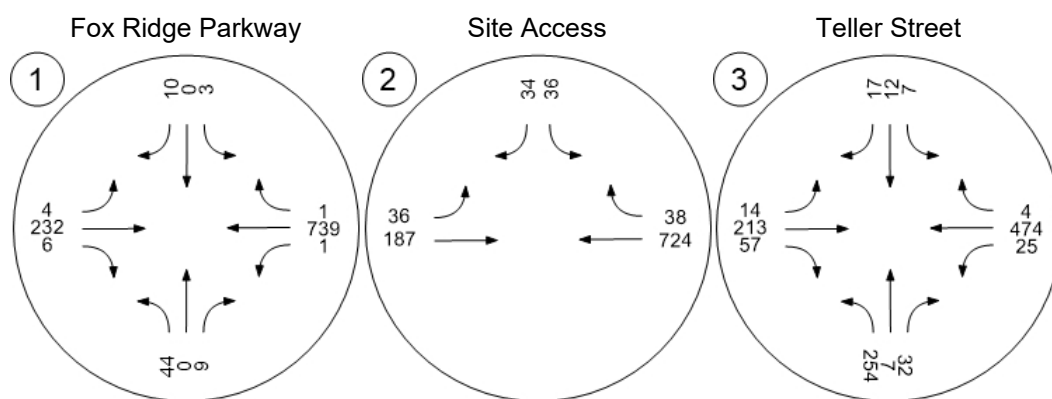


Figure 12 – Year 2028 Total Traffic Volumes – Evening Peak Hour

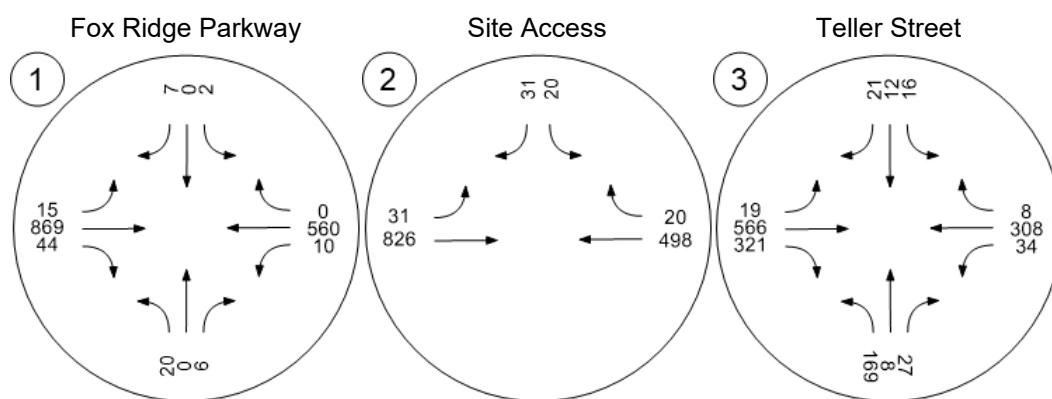


Figure 13 – Year 2042 Background Traffic Volumes – Morning Peak Hour

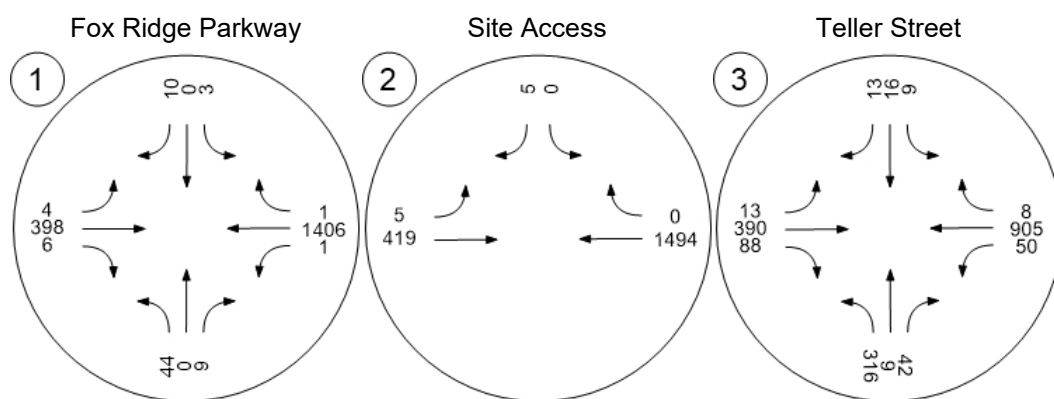


Figure 14 – Year 2042 Background Traffic Volumes – Evening Peak Hour

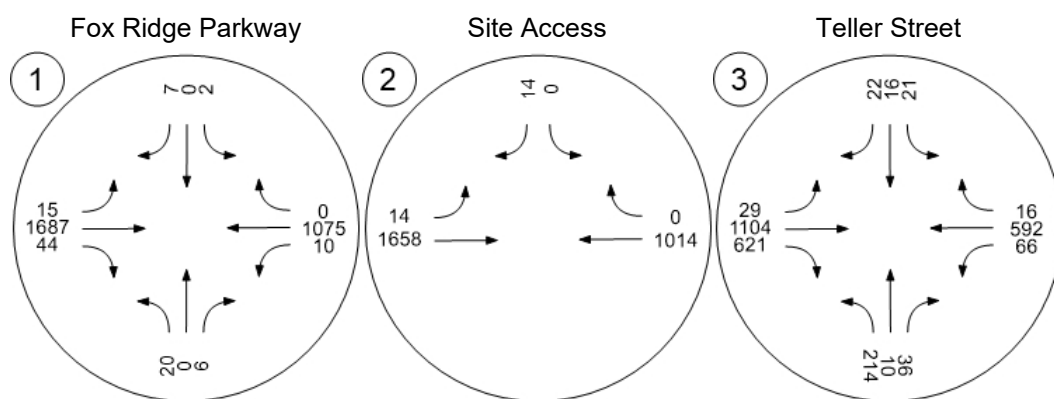


Figure 15 – Year 2042 Total Traffic Volumes – Morning Peak Hour

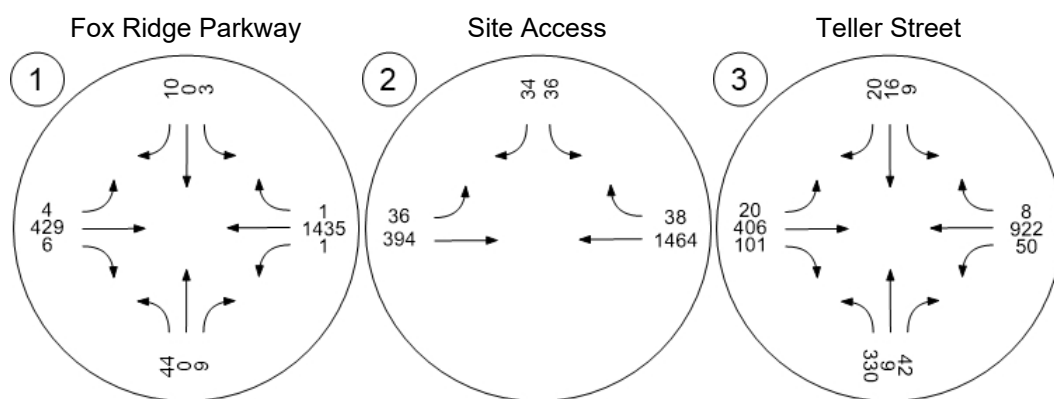


Figure 16 – Year 2042 Total Traffic Volumes – Evening Peak Hour

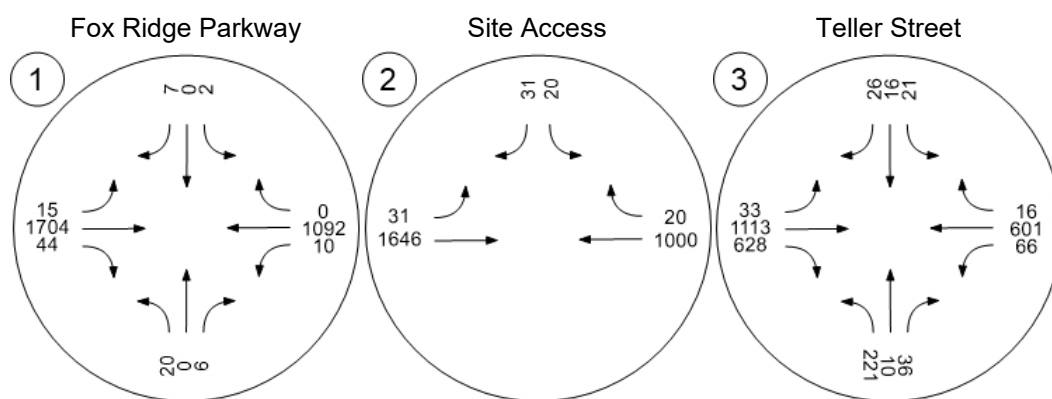
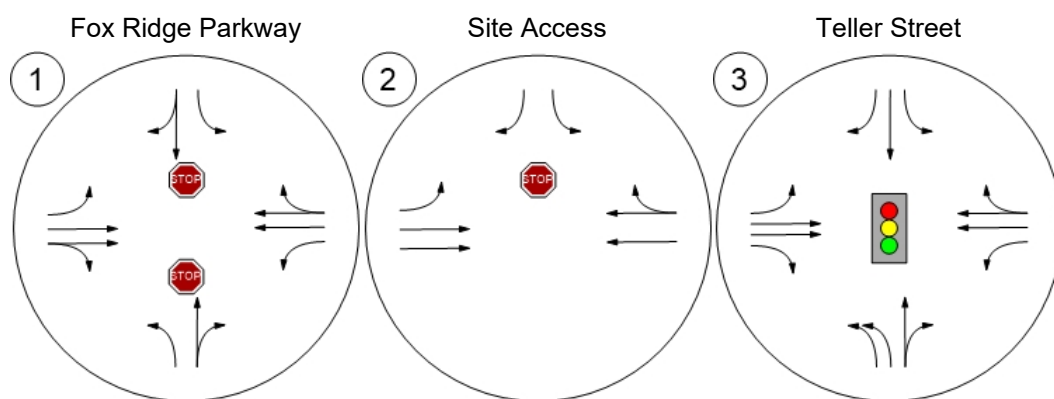
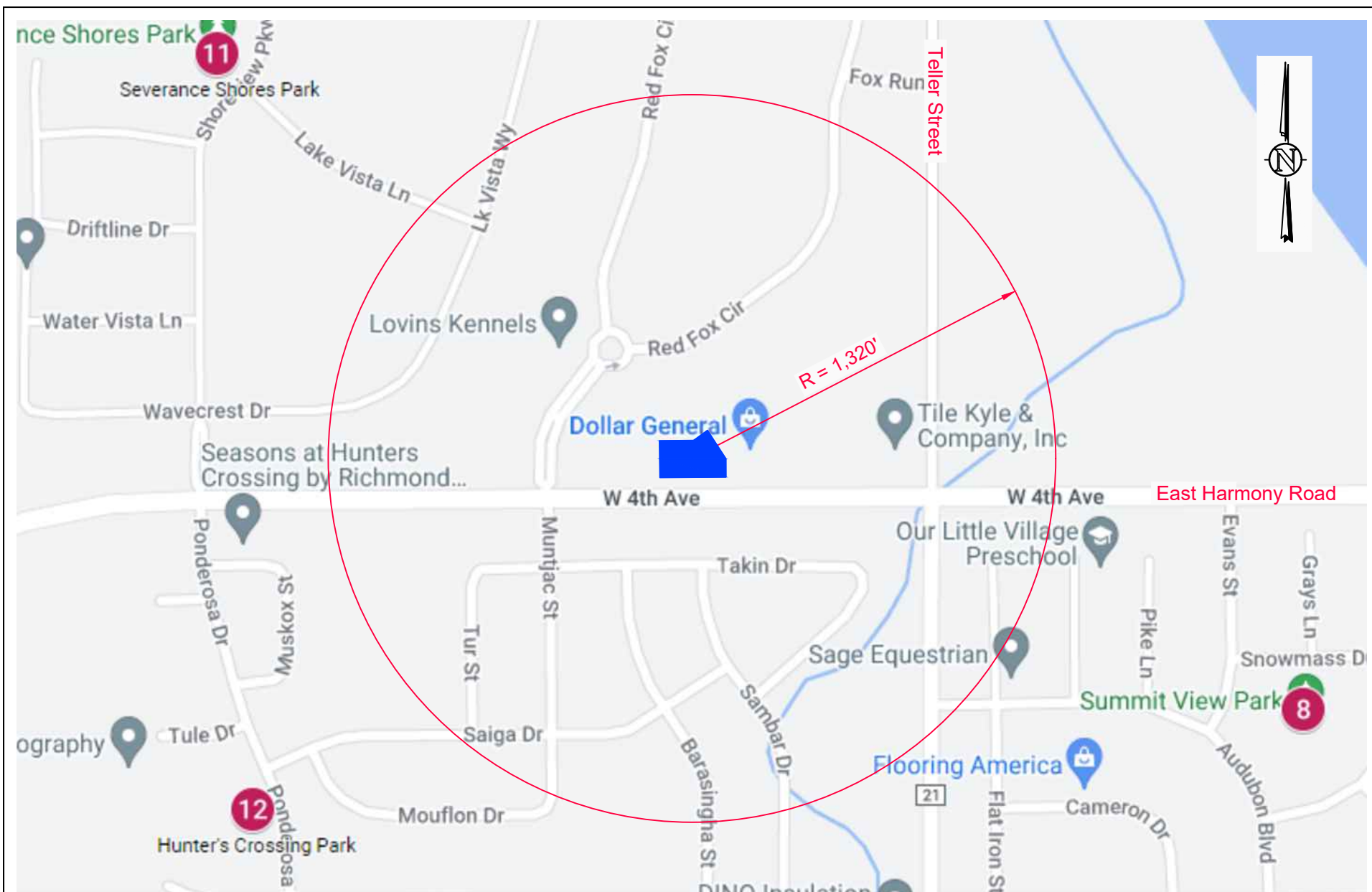


Figure 17 – Laneage and Traffic Control – Year 2042 Traffic Volume Scenarios





Ziggi's Coffee Traffic Impact Study PEDESTRIAN AND BICYCLE DESTINATIONS WITHIN 1,320' OF THE SITE

Scale	1" = 500'	Date	December 9, 2022	Drawn by	JLH	Job #	American Eagle Properties	Figure	18
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Appendix A

Traffic Count Data



ALL TRAFFIC DATA SERVICES

(303) 216-2439

www.alltrafficdata.net

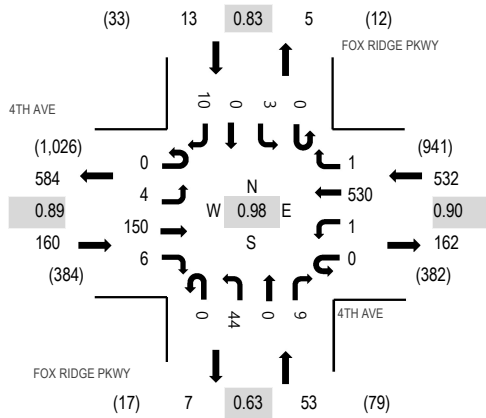
Location: 1 FOX RIDGE PKWY & 4TH AVE AM

Date: Thursday, June 2, 2022

Peak Hour: 07:00 AM - 08:00 AM

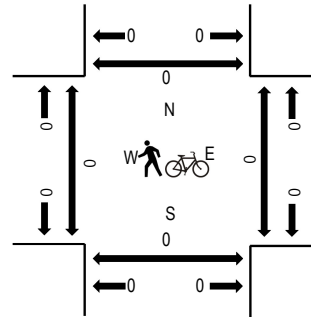
Peak 15-Minutes: 07:30 AM - 07:45 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				FOX RIDGE PKWY Northbound				FOX RIDGE PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	2	29	3	0	1	129	0	0	18	0	3	0	1	0	3	189	758	0	0	0	0
7:15 AM	0	0	27	0	0	0	146	1	0	11	0	3	0	0	0	2	190	740	0	0	0	0
7:30 AM	0	1	41	1	0	0	139	0	0	9	0	1	0	2	0	0	194	725	0	0	0	0
7:45 AM	0	1	53	2	0	0	116	0	0	6	0	2	0	0	0	5	185	700	0	0	0	0
8:00 AM	0	0	40	2	0	1	111	2	0	8	0	1	0	1	0	5	171	679	0	0	0	0
8:15 AM	0	1	58	2	0	0	102	0	0	7	0	0	0	0	0	5	175		0	1	0	0
8:30 AM	0	0	56	2	0	1	100	0	0	6	0	0	0	0	0	4	169		0	0	0	0
8:45 AM	0	2	61	0	0	2	88	2	0	3	0	1	0	2	0	3	164		0	0	0	0
Count Total	0	7	365	12	0	5	931	5	0	68	0	11	0	6	0	27	1,437		0	1	0	0
Peak Hour	0	4	150	6	0	1	530	1	0	44	0	9	0	3	0	10	758		0	0	0	0



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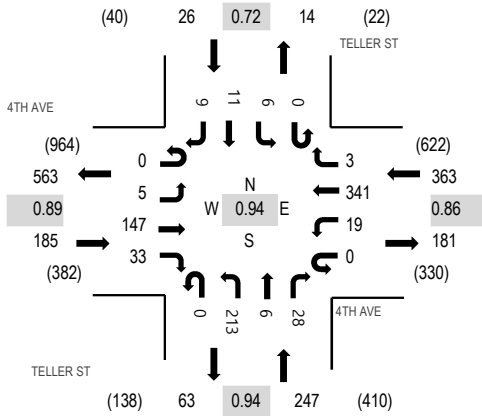
Location: 2 TELLER ST & 4TH AVE AM

Date: Thursday, June 2, 2022

Peak Hour: 07:00 AM - 08:00 AM

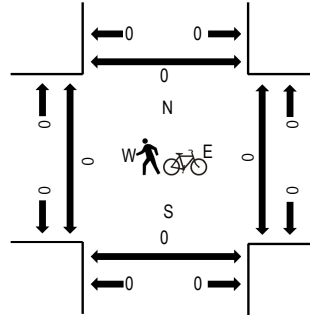
Peak 15-Minutes: 07:15 AM - 07:30 AM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				TELLER ST Northbound				TELLER ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
7:00 AM	0	0	27	4	0	3	81	1	0	53	3	7	0	0	3	0	182	821	0	0	0	0
7:15 AM	0	1	32	11	0	4	102	0	0	55	0	6	0	4	2	1	218	793	0	0	0	0
7:30 AM	0	0	46	7	0	7	86	1	0	50	1	6	0	0	1	6	211	731	0	0	0	0
7:45 AM	0	4	42	11	0	5	72	1	0	55	2	9	0	2	5	2	210	694	0	0	0	0
8:00 AM	0	0	28	19	0	2	65	0	0	28	1	9	0	0	0	2	154	633	0	0	0	0
8:15 AM	0	2	32	13	0	2	57	0	0	42	0	2	0	0	4	2	156		0	0	0	0
8:30 AM	0	2	31	12	0	3	76	0	0	44	2	2	0	0	1	1	174		0	0	0	0
8:45 AM	0	0	42	16	0	3	51	0	0	29	1	3	0	0	0	4	149		0	1	0	1
Count Total	0	9	280	93	0	29	590	3	0	356	10	44	0	6	16	18	1,454		0	1	0	1
Peak Hour	0	5	147	33	0	19	341	3	0	213	6	28	0	6	11	9	821		0	0	0	0



ALL TRAFFIC DATA SERVICES

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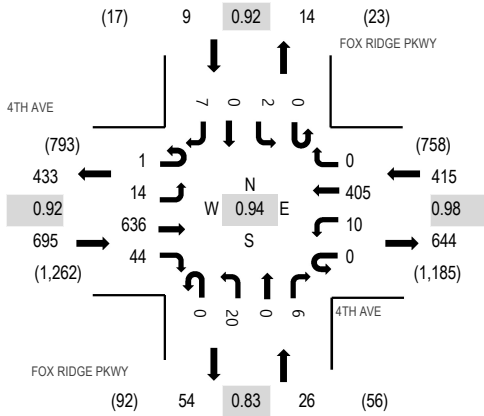
Location: 1 FOX RIDGE PKWY & 4TH AVE PM

Date: Thursday, June 2, 2022

Peak Hour: 04:45 PM - 05:45 PM

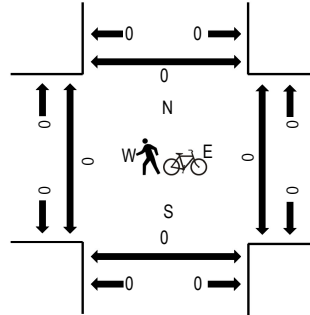
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				FOX RIDGE PKWY Northbound				FOX RIDGE PKWY Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	2	131	6	0	2	76	0	0	7	0	1	0	0	0	3	228	983	0	0	1	0
4:15 PM	0	3	153	6	0	2	83	0	0	4	1	4	0	2	0	0	258	1,022	0	0	0	0
4:30 PM	0	2	100	6	0	1	98	0	0	6	0	1	0	0	0	3	217	1,067	0	0	0	0
4:45 PM	0	3	152	11	0	3	103	0	0	5	0	1	0	0	0	2	280	1,145	0	0	0	0
5:00 PM	1	4	142	10	0	1	99	0	0	6	0	1	0	0	0	3	267	1,110	0	0	0	0
5:15 PM	0	6	167	15	0	4	101	0	0	5	0	2	0	1	0	2	303		0	0	0	0
5:30 PM	0	1	175	8	0	2	102	0	0	4	0	2	0	1	0	0	295		0	0	0	0
5:45 PM	0	1	146	11	0	4	77	0	0	3	0	3	0	0	0	0	245		0	0	0	0
Count Total	1	22	1,166	73	0	19	739	0	0	40	1	15	0	4	0	13	2,093		0	0	1	0
Peak Hour	1	14	636	44	0	10	405	0	0	20	0	6	0	2	0	7	1,145		0	0	0	0



(303) 216-2439
www.alltrafficdata.net

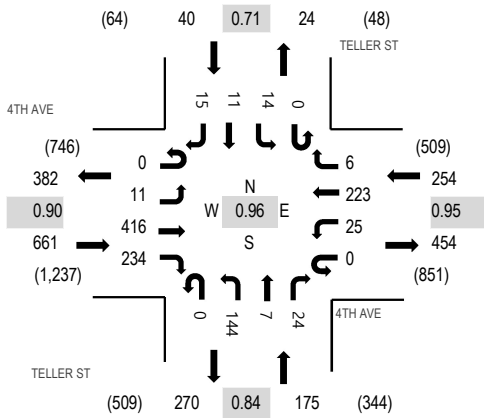
Location: 2 TELLER ST & 4TH AVE PM

Date: Thursday, June 2, 2022

Peak Hour: 04:45 PM - 05:45 PM

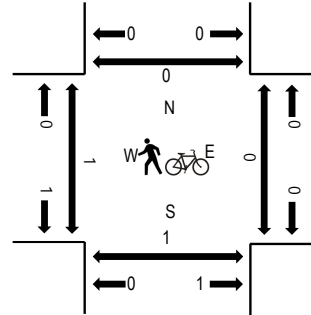
Peak 15-Minutes: 05:15 PM - 05:30 PM

Peak Hour - All Vehicles



Note: Total study counts contained in parentheses.

Peak Hour - Pedestrians/Bicycles on Crosswalk



Traffic Counts

Interval Start Time	4TH AVE Eastbound				4TH AVE Westbound				TELLER ST Northbound				TELLER ST Southbound				Total	Rolling Hour	Pedestrian Crossings			
	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right	U-Turn	Left	Thru	Right			West	East	South	North
4:00 PM	0	3	84	45	0	5	56	1	0	36	4	10	0	3	1	3	251	1,025	0	0	0	0
4:15 PM	0	3	88	54	0	4	53	2	0	28	1	7	0	0	4	1	245	1,047	0	0	0	1
4:30 PM	0	0	88	53	0	5	58	2	0	32	1	7	0	2	1	2	251	1,095	1	0	1	0
4:45 PM	0	1	99	54	0	6	53	1	0	47	1	5	0	2	6	3	278	1,130	0	0	0	0
5:00 PM	0	2	102	54	0	6	61	2	0	28	2	5	0	2	3	6	273	1,129	1	0	1	0
5:15 PM	0	6	114	65	0	7	54	1	0	32	2	8	0	3	1	0	293		0	0	0	0
5:30 PM	0	2	101	61	0	6	55	2	0	37	2	6	0	7	1	6	286		0	0	0	0
5:45 PM	0	3	94	61	0	2	66	1	0	28	3	12	0	2	4	1	277		0	0	0	0
Count Total	0	20	770	447	0	41	456	12	0	268	16	60	0	21	21	22	2,154		2	0	2	1
Peak Hour	0	11	416	234	0	25	223	6	0	144	7	24	0	14	11	15	1,130		1	0	1	0



All Traffic Data Services

SITE 1_E - 4TH AVE EAST OF FOX RIDGE PKWY

EB	Time	Lights	Mediums	Trucks	Total
	6/2/2022	7	0	0	7
	6/2/2022 12:15:00 AM	7	0	0	7
	6/2/2022 12:30:00 AM	5	0	0	5
	6/2/2022 12:45:00 AM	6	0	0	6
	Hour	25	0	0	25
	6/2/2022 1:00:00 AM	5	0	0	5
	6/2/2022 1:15:00 AM	5	0	0	5
	6/2/2022 1:30:00 AM	2	0	0	2
	6/2/2022 1:45:00 AM	5	0	0	5
	Hour	17	0	0	17
	6/2/2022 2:00:00 AM	3	0	0	3
	6/2/2022 2:15:00 AM	4	0	0	4
	6/2/2022 2:30:00 AM	1	0	0	1
	6/2/2022 2:45:00 AM	3	0	0	3
	Hour	11	0	0	11
	6/2/2022 3:00:00 AM	2	0	0	2
	6/2/2022 3:15:00 AM	2	0	0	2
	6/2/2022 3:30:00 AM	2	0	0	2
	6/2/2022 3:45:00 AM	2	0	0	2
	Hour	8	0	0	8
	6/2/2022 4:00:00 AM	6	0	0	6
	6/2/2022 4:15:00 AM	2	0	0	2
	6/2/2022 4:30:00 AM	3	0	0	3
	6/2/2022 4:45:00 AM	3	0	0	3
	Hour	14	0	0	14
	6/2/2022 5:00:00 AM	6	0	0	6
	6/2/2022 5:15:00 AM	10	0	0	10
	6/2/2022 5:30:00 AM	17	0	0	17
	6/2/2022 5:45:00 AM	29	0	0	29
	Hour	62	0	0	62
	6/2/2022 6:00:00 AM	20	0	0	20
	6/2/2022 6:15:00 AM	22	0	0	22
	6/2/2022 6:30:00 AM	31	0	0	31
	6/2/2022 6:45:00 AM	40	2	1	43
	Hour	113	2	1	116
	6/2/2022 7:00:00 AM	33	0	0	33
	6/2/2022 7:15:00 AM	28	2	0	30
	6/2/2022 7:30:00 AM	43	1	0	44
	6/2/2022 7:45:00 AM	53	2	0	55
	Hour	157	5	0	162
	6/2/2022 8:00:00 AM	39	2	1	42
	6/2/2022 8:15:00 AM	56	2	0	58
	6/2/2022 8:30:00 AM	52	4	0	56
	6/2/2022 8:45:00 AM	61	2	1	64
	Hour	208	10	2	220
	6/2/2022 9:00:00 AM	43	4	1	48
	6/2/2022 9:15:00 AM	39	0	0	39
	6/2/2022 9:30:00 AM	59	3	0	62
	6/2/2022 9:45:00 AM	29	1	0	30
	Hour	170	8	1	179
	6/2/2022 10:00:00 AM	42	3	0	45
	6/2/2022 10:15:00 AM	42	2	0	44
	6/2/2022 10:30:00 AM	58	1	0	59
	6/2/2022 10:45:00 AM	83	0	0	83
	Hour	225	6	0	231
	6/2/2022 11:00:00 AM	61	1	1	63
	6/2/2022 11:15:00 AM	62	1	1	64
	6/2/2022 11:30:00 AM	77	2	1	80
	6/2/2022 11:45:00 AM	81	5	0	86
	Hour	281	9	3	293
	Total	1,291	40	7	1,338
	Percentage	96.5%	3.0%	0.5%	



All Traffic Data Services

SITE 1_E - 4TH AVE EAST OF FOX RIDGE PKWY

EB	Time	Lights	Mediums	Trucks	Total
	6/2/2022 12:00:00 PM	69	4	0	73
	6/2/2022 12:15:00 PM	58	0	0	58
	6/2/2022 12:30:00 PM	78	4	0	82
	6/2/2022 12:45:00 PM	83	3	1	87
	Hour	288	11	1	300
	6/2/2022 1:00:00 PM	72	0	0	72
	6/2/2022 1:15:00 PM	78	2	0	80
	6/2/2022 1:30:00 PM	68	4	0	72
	6/2/2022 1:45:00 PM	74	0	0	74
	Hour	292	6	0	298
	6/2/2022 2:00:00 PM	77	2	0	79
	6/2/2022 2:15:00 PM	92	0	0	92
	6/2/2022 2:30:00 PM	99	1	0	100
	6/2/2022 2:45:00 PM	92	0	2	94
	Hour	360	3	2	365
	6/2/2022 3:00:00 PM	106	1	0	107
	6/2/2022 3:15:00 PM	101	1	1	103
	6/2/2022 3:30:00 PM	113	1	1	115
	6/2/2022 3:45:00 PM	145	3	2	150
	Hour	465	6	4	475
	6/2/2022 4:00:00 PM	132	0	0	132
	6/2/2022 4:15:00 PM	153	5	1	159
	6/2/2022 4:30:00 PM	99	1	1	101
	6/2/2022 4:45:00 PM	153	0	0	153
	Hour	537	6	2	545
	6/2/2022 5:00:00 PM	142	1	0	143
	6/2/2022 5:15:00 PM	170	0	0	170
	6/2/2022 5:30:00 PM	174	3	1	178
	6/2/2022 5:45:00 PM	149	0	0	149
	Hour	635	4	1	640
	6/2/2022 6:00:00 PM	130	1	0	131
	6/2/2022 6:15:00 PM	122	0	1	123
	6/2/2022 6:30:00 PM	131	0	0	131
	6/2/2022 6:45:00 PM	107	1	0	108
	Hour	490	2	1	493
	6/2/2022 7:00:00 PM	92	2	1	95
	6/2/2022 7:15:00 PM	81	0	0	81
	6/2/2022 7:30:00 PM	66	0	0	66
	6/2/2022 7:45:00 PM	73	0	0	73
	Hour	312	2	1	315
	6/2/2022 8:00:00 PM	70	1	0	71
	6/2/2022 8:15:00 PM	76	0	0	76
	6/2/2022 8:30:00 PM	64	0	0	64
	6/2/2022 8:45:00 PM	62	0	1	63
	Hour	272	1	1	274
	6/2/2022 9:00:00 PM	50	0	0	50
	6/2/2022 9:15:00 PM	57	0	0	57
	6/2/2022 9:30:00 PM	46	0	0	46
	6/2/2022 9:45:00 PM	35	0	0	35
	Hour	188	0	0	188
	6/2/2022 10:00:00 PM	28	0	0	28
	6/2/2022 10:15:00 PM	23	0	0	23
	6/2/2022 10:30:00 PM	19	0	0	19
	6/2/2022 10:45:00 PM	19	0	0	19
	Hour	89	0	0	89
	6/2/2022 11:00:00 PM	14	0	0	14
	6/2/2022 11:15:00 PM	19	0	0	19
	6/2/2022 11:30:00 PM	2	0	0	2
	6/2/2022 11:45:00 PM	3	0	0	3
	Hour	38	0	0	38
	Total	3,966	41	13	4,020
	Percentage	98.7%	1.0%	0.3%	
	Grand Total	5,257	81	20	5,358
	Percentage	98.1%	1.5%	0.4%	



All Traffic Data Services

SITE 1_E - 4TH AVE EAST OF FOX RIDGE PKWY

WB	Time	Lights	Mediums	Trucks	Total
	6/2/2022	2	0	1	3
	6/2/2022 12:15:00 AM	2	0	0	2
	6/2/2022 12:30:00 AM	1	0	0	1
	6/2/2022 12:45:00 AM	1	0	0	1
	Hour	6	0	1	7
	6/2/2022 1:00:00 AM	3	0	0	3
	6/2/2022 1:15:00 AM	1	0	0	1
	6/2/2022 1:30:00 AM	0	0	0	0
	6/2/2022 1:45:00 AM	2	0	0	2
	Hour	6	0	0	6
	6/2/2022 2:00:00 AM	2	0	0	2
	6/2/2022 2:15:00 AM	2	0	0	2
	6/2/2022 2:30:00 AM	0	0	0	0
	6/2/2022 2:45:00 AM	3	0	0	3
	Hour	7	0	0	7
	6/2/2022 3:00:00 AM	3	0	0	3
	6/2/2022 3:15:00 AM	5	0	0	5
	6/2/2022 3:30:00 AM	8	0	0	8
	6/2/2022 3:45:00 AM	4	0	0	4
	Hour	20	0	0	20
	6/2/2022 4:00:00 AM	5	0	0	5
	6/2/2022 4:15:00 AM	8	0	0	8
	6/2/2022 4:30:00 AM	12	0	0	12
	6/2/2022 4:45:00 AM	17	0	0	17
	Hour	42	0	0	42
	6/2/2022 5:00:00 AM	29	0	0	29
	6/2/2022 5:15:00 AM	43	0	0	43
	6/2/2022 5:30:00 AM	51	0	0	51
	6/2/2022 5:45:00 AM	55	0	0	55
	Hour	178	0	0	178
	6/2/2022 6:00:00 AM	73	0	0	73
	6/2/2022 6:15:00 AM	75	1	0	76
	6/2/2022 6:30:00 AM	123	0	0	123
	6/2/2022 6:45:00 AM	110	1	0	111
	Hour	381	2	0	383
	6/2/2022 7:00:00 AM	130	0	0	130
	6/2/2022 7:15:00 AM	146	0	1	147
	6/2/2022 7:30:00 AM	138	0	1	139
	6/2/2022 7:45:00 AM	114	2	0	116
	Hour	528	2	2	532
	6/2/2022 8:00:00 AM	112	2	0	114
	6/2/2022 8:15:00 AM	101	1	0	102
	6/2/2022 8:30:00 AM	99	0	2	101
	6/2/2022 8:45:00 AM	91	1	0	92
	Hour	403	4	2	409
	6/2/2022 9:00:00 AM	81	2	0	83
	6/2/2022 9:15:00 AM	90	2	0	92
	6/2/2022 9:30:00 AM	85	2	1	88
	6/2/2022 9:45:00 AM	66	0	0	66
	Hour	322	6	1	329
	6/2/2022 10:00:00 AM	99	0	0	99
	6/2/2022 10:15:00 AM	59	4	0	63
	6/2/2022 10:30:00 AM	82	2	0	84
	6/2/2022 10:45:00 AM	72	2	1	75
	Hour	312	8	1	321
	6/2/2022 11:00:00 AM	72	0	0	72
	6/2/2022 11:15:00 AM	87	1	0	88
	6/2/2022 11:30:00 AM	79	2	0	81
	6/2/2022 11:45:00 AM	79	2	0	81
	Hour	317	5	0	322
	Total	2,522	27	7	2,556
	Percentage	98.7%	1.1%	0.3%	



All Traffic Data Services

SITE 1_E - 4TH AVE EAST OF FOX RIDGE PKWY

WB	Time	Lights	Mediums	Trucks	Total
	6/2/2022 12:00:00 PM	76	2	1	79
	6/2/2022 12:15:00 PM	63	0	1	64
	6/2/2022 12:30:00 PM	83	1	0	84
	6/2/2022 12:45:00 PM	70	4	0	74
	Hour	292	7	2	301
	6/2/2022 1:00:00 PM	62	3	1	66
	6/2/2022 1:15:00 PM	73	3	2	78
	6/2/2022 1:30:00 PM	58	2	0	60
	6/2/2022 1:45:00 PM	66	4	2	72
	Hour	259	12	5	276
	6/2/2022 2:00:00 PM	50	2	1	53
	6/2/2022 2:15:00 PM	63	1	0	64
	6/2/2022 2:30:00 PM	71	2	0	73
	6/2/2022 2:45:00 PM	59	3	0	62
	Hour	243	8	1	252
	6/2/2022 3:00:00 PM	70	1	0	71
	6/2/2022 3:15:00 PM	77	0	0	77
	6/2/2022 3:30:00 PM	79	1	0	80
	6/2/2022 3:45:00 PM	86	1	1	88
	Hour	312	3	1	316
	6/2/2022 4:00:00 PM	76	2	0	78
	6/2/2022 4:15:00 PM	85	0	0	85
	6/2/2022 4:30:00 PM	95	4	0	99
	6/2/2022 4:45:00 PM	106	0	0	106
	Hour	362	6	0	368
	6/2/2022 5:00:00 PM	98	2	0	100
	6/2/2022 5:15:00 PM	105	0	0	105
	6/2/2022 5:30:00 PM	102	1	1	104
	6/2/2022 5:45:00 PM	79	2	0	81
	Hour	384	5	1	390
	6/2/2022 6:00:00 PM	78	3	1	82
	6/2/2022 6:15:00 PM	71	0	0	71
	6/2/2022 6:30:00 PM	68	0	0	68
	6/2/2022 6:45:00 PM	48	0	0	48
	Hour	265	3	1	269
	6/2/2022 7:00:00 PM	56	0	1	57
	6/2/2022 7:15:00 PM	57	1	0	58
	6/2/2022 7:30:00 PM	42	0	0	42
	6/2/2022 7:45:00 PM	37	0	0	37
	Hour	192	1	1	194
	6/2/2022 8:00:00 PM	35	0	0	35
	6/2/2022 8:15:00 PM	28	0	0	28
	6/2/2022 8:30:00 PM	37	0	0	37
	6/2/2022 8:45:00 PM	26	0	0	26
	Hour	126	0	0	126
	6/2/2022 9:00:00 PM	15	1	0	16
	6/2/2022 9:15:00 PM	26	0	0	26
	6/2/2022 9:30:00 PM	24	0	0	24
	6/2/2022 9:45:00 PM	8	0	0	8
	Hour	73	1	0	74
	6/2/2022 10:00:00 PM	8	0	0	8
	6/2/2022 10:15:00 PM	15	0	0	15
	6/2/2022 10:30:00 PM	15	0	0	15
	6/2/2022 10:45:00 PM	4	0	0	4
	Hour	42	0	0	42
	6/2/2022 11:00:00 PM	6	0	0	6
	6/2/2022 11:15:00 PM	7	0	0	7
	6/2/2022 11:30:00 PM	6	0	0	6
	6/2/2022 11:45:00 PM	5	0	0	5
	Hour	24	0	0	24
	Total	2,574	46	12	2,632
	Percentage	97.8%	1.7%	0.5%	
	Grand Total	5,096	73	19	5,188
	Percentage	98.2%	1.4%	0.4%	

Appendix B

VISTRO Analysis Results

Year 2022 Volumes

Ziggi's Coffee TIS

Vistro File: C:\...\AM.vistro

Scenario 1 Existing AM

Report File: C:\...\Existing AM.pdf

12/9/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.228	20.2	C
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.013	12.9	B
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.341	16.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 20.2
Level Of Service: C
Volume to Capacity (v/c): 0.228

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
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
Total Hourly Volume [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.8300	0.8300	0.8300	0.8900	0.8900	0.8900	0.9000	0.9000	0.9000
Other 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
Total 15-Minute Volume [veh/h]	17	0	4	1	0	3	1	42	2	0	147	0
Total Analysis Volume [veh/h]	70	0	14	4	0	12	4	169	7	1	589	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.23	0.00	0.02	0.01	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	20.19	15.98	9.18	16.89	16.18	12.26	8.67	0.00	0.00	7.57	0.00	0.00
Movement LOS	C	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.86	0.05	0.05	0.04	0.07	0.07	0.01	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	21.58	1.22	1.22	0.99	1.81	1.81	0.31	0.00	0.00	0.05	0.00	0.00
d_A, Approach Delay [s/veh]	18.36			13.42			0.19			0.01		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	2.07											
Intersection LOS	C											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.9
Level Of Service: B
Volume to Capacity (v/c): 0.013

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration	↵↵		↵↑		↑↵	
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	5	5	158	563	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	5	158	563	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	46	166	0
Total Analysis Volume [veh/h]	0	6	6	186	662	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.01	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	16.10	12.90	8.91	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.04	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	0.99	0.49	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.90		0.28		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.15					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Teller Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 16.5
 Level Of Service: B
 Volume to Capacity (v/c): 0.341

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
Base Volume Input [veh/h]	213	6	28	6	11	9	5	147	33	19	341	3
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
Proportion of CAVs [%]	0.00											
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	14	0	0	5	0	0	17	0	0	2
Total Hourly Volume [veh/h]	213	6	14	6	11	4	5	147	16	19	341	1
Peak Hour Factor	0.9400	0.9400	0.9400	0.7200	0.7200	0.7200	0.8900	0.8900	0.8900	0.8600	0.8600	0.8600
Other 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
Total 15-Minute Volume [veh/h]	57	2	4	2	4	1	1	41	4	6	99	0
Total Analysis Volume [veh/h]	227	6	15	8	15	6	6	165	18	22	397	1
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	82	82	82	82	82	82	82	82	82	82
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	19	15	19	4	4	51	45	45	51	46
g / C, Green / Cycle	0.23	0.18	0.23	0.05	0.05	0.61	0.55	0.55	0.61	0.56
(v / s)_i Volume / Saturation Flow Rate	0.14	0.01	0.01	0.01	0.00	0.01	0.09	0.01	0.02	0.21
s, saturation flow rate [veh/h]	1661	1661	1445	1870	1589	1026	1870	1589	1242	1869
c, Capacity [veh/h]	515	296	460	89	76	638	1019	866	838	1043
d1, Uniform Delay [s]	27.67	28.23	24.25	37.73	37.57	6.83	9.37	8.64	6.34	10.24
k, delay calibration	0.24	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.30	0.10	0.01	0.88	0.44	0.03	0.34	0.04	0.01	1.06
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.07	0.02	0.17	0.08	0.01	0.16	0.02	0.03	0.38
d, Delay for Lane Group [s/veh]	28.96	28.33	24.26	38.60	38.01	6.85	9.71	8.68	6.35	11.30
Lane Group LOS	C	C	C	D	D	A	A	A	A	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.00	0.35	0.12	0.31	0.12	0.04	1.46	0.15	0.14	3.96
50th-Percentile Queue Length [ft/ln]	99.89	8.69	2.99	7.70	3.08	1.02	36.42	3.69	3.39	98.93
95th-Percentile Queue Length [veh/ln]	7.19	0.63	0.22	0.55	0.22	0.07	2.62	0.27	0.24	7.12
95th-Percentile Queue Length [ft/ln]	179.80	15.63	5.38	13.87	5.55	1.83	65.55	6.64	6.10	178.07

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.96	28.33	28.33	24.26	38.60	38.01	6.85	9.71	8.68	6.35	11.30	11.30
Movement LOS	C	C	C	C	D	D	A	A	A	A	B	B
d_A, Approach Delay [s/veh]	28.91			34.52			9.52			11.04		
Approach LOS	C			C			A			B		
d_I, Intersection Delay [s/veh]	16.48											
Intersection LOS	B											
Intersection V/C	0.341											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1092			1092			1092			1092		
d_b, Bicycle Delay [s]	8.50			8.50			8.50			8.50		
I_b,int, Bicycle LOS Score for Intersection	1.992			1.616			1.900			2.256		
Bicycle LOS	A			A			A			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\pm.vistro
Report File: C:\...\Existing PM.pdf

Scenario 1 Existing PM
12/9/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.145	30.3	D
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.026	11.1	B
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.351	14.3	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 30.3
Level Of Service: D
Volume to Capacity (v/c): 0.145

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	20	0	6	2	0	7	15	636	44	10	405	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
Total Hourly Volume [veh/h]	20	0	6	2	0	7	15	636	44	10	405	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800
Other 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
Total 15-Minute Volume [veh/h]	6	0	2	1	0	2	4	173	12	3	103	0
Total Analysis Volume [veh/h]	24	0	7	2	0	8	16	691	48	10	413	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.14	0.00	0.02	0.01	0.00	0.01	0.01	0.01	0.00	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	30.31	23.92	13.23	27.86	25.14	10.70	8.19	0.00	0.00	9.20	0.00	0.00
Movement LOS	D	C	B	D	D	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.49	0.05	0.05	0.04	0.04	0.04	0.04	0.00	0.00	0.03	0.00	0.00
95th-Percentile Queue Length [ft/ln]	12.33	1.20	1.20	0.95	0.95	0.95	1.06	0.00	0.00	0.87	0.00	0.00
d_A, Approach Delay [s/veh]	26.46			14.14			0.17			0.22		
Approach LOS	D			B			A			A		
d_I, Intersection Delay [s/veh]	0.97											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 11.1
Level Of Service: B
Volume to Capacity (v/c): 0.026

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	14	14	625	382	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	14	625	382	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	4	184	112	0
Total Analysis Volume [veh/h]	0	16	16	735	449	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.01	0.01	0.00	0.00
d_M, Delay for Movement [s/veh]	23.26	11.06	8.29	0.00	0.00	0.00
Movement LOS	C	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.08	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.02	1.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	11.06		0.18		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.25					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Teller Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.3
 Level Of Service: B
 Volume to Capacity (v/c): 0.351

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	144	7	24	14	11	15	11	416	234	25	223	6
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
Proportion of CAVs [%]	0.00											
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	12	0	0	8	0	0	117	0	0	3
Total Hourly Volume [veh/h]	144	7	12	14	11	7	11	416	117	25	223	3
Peak Hour Factor	0.8400	0.8400	0.8400	0.7100	0.7100	0.7100	0.9000	0.9000	0.9000	0.9500	0.9500	0.9500
Other 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
Total 15-Minute Volume [veh/h]	43	2	4	5	4	2	3	116	33	7	59	1
Total Analysis Volume [veh/h]	171	8	14	20	15	10	12	462	130	26	235	3
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	17	12	17	4	4	51	45	45	51	46
g / C, Green / Cycle	0.21	0.15	0.21	0.05	0.05	0.63	0.56	0.56	0.63	0.57
(v / s)_i Volume / Saturation Flow Rate	0.10	0.01	0.01	0.01	0.01	0.01	0.25	0.08	0.03	0.13
s, saturation flow rate [veh/h]	1634	1681	1468	1870	1589	1179	1870	1589	896	1866
c, Capacity [veh/h]	477	246	437	102	87	803	1044	888	575	1061
d1, Uniform Delay [s]	27.52	29.76	25.16	36.28	36.22	5.71	10.43	8.55	6.52	8.58
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.45	0.16	0.04	0.65	0.58	0.03	1.36	0.35	0.03	0.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.09	0.05	0.15	0.11	0.01	0.44	0.15	0.05	0.22
d, Delay for Lane Group [s/veh]	27.97	29.92	25.20	36.94	36.80	5.74	11.79	8.90	6.55	9.07
Lane Group LOS	C	C	C	D	D	A	B	A	A	A
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	2.84	0.37	0.30	0.29	0.20	0.07	4.67	1.07	0.15	1.98
50th-Percentile Queue Length [ft/ln]	71.00	9.30	7.56	7.36	4.94	1.81	116.71	26.80	3.66	49.55
95th-Percentile Queue Length [veh/ln]	5.11	0.67	0.54	0.53	0.36	0.13	8.21	1.93	0.26	3.57
95th-Percentile Queue Length [ft/ln]	127.80	16.74	13.61	13.26	8.90	3.25	205.29	48.23	6.59	89.19

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.97	29.92	29.92	25.20	36.94	36.80	5.74	11.79	8.90	6.55	9.07	9.07
Movement LOS	C	C	C	C	D	D	A	B	A	A	A	A
d_A, Approach Delay [s/veh]	28.19			31.69			11.04			8.83		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	14.35											
Intersection LOS	B											
Intersection V/C	0.351											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1119			1119			1119			1119		
d_b, Bicycle Delay [s]	7.81			7.81			7.81			7.81		
I_b,int, Bicycle LOS Score for Intersection	1.898			1.647			2.749			2.000		
Bicycle LOS	A			A			B			B		

Sequence

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



Year 2028 Traffic Volume Scenarios

Ziggi's Coffee TIS

Vistro File: C:\...\AM.vistro

Scenario 6 2028 Back AM

Report File: C:\...\2028 Back AM.pdf

12/9/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.344	31.7	D
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.017	15.7	C
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.429	17.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 31.7
Level Of Service: D
Volume to Capacity (v/c): 0.344

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
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	1.3401	1.0000	1.0000	1.3401	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
Total Hourly Volume [veh/h]	44	0	9	3	0	10	4	201	6	1	710	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.8300	0.8300	0.8300	0.8900	0.8900	0.8900	0.9000	0.9000	0.9000
Other 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
Total 15-Minute Volume [veh/h]	17	0	4	1	0	3	1	56	2	0	197	0
Total Analysis Volume [veh/h]	70	0	14	4	0	12	4	226	7	1	789	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.34	0.00	0.02	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	31.68	20.50	9.50	22.92	20.85	14.51	9.36	0.00	0.00	7.70	0.00	0.00
Movement LOS	D	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.45	0.05	0.05	0.06	0.09	0.09	0.01	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	36.17	1.31	1.31	1.49	2.37	2.37	0.36	0.00	0.00	0.06	0.00	0.00
d_A, Approach Delay [s/veh]	27.98			16.61			0.16			0.01		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	2.36											
Intersection LOS	D											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 15.7
Level Of Service: C
Volume to Capacity (v/c): 0.017

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	5	5	158	563	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.3401	1.3401	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	5	212	754	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	62	222	0
Total Analysis Volume [veh/h]	0	6	6	249	887	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	21.51	15.68	9.75	0.00	0.00	0.00
Movement LOS	C	C	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.02	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.33	0.59	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	15.68		0.23		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.13					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Teller Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 17.6
Level Of Service: B
Volume to Capacity (v/c): 0.429

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
Base Volume Input [veh/h]	213	6	28	6	11	9	5	147	33	19	341	3
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.1262	1.1262	1.1262	1.1262	1.1262	1.1262	1.3401	1.3401	1.3401	1.3401	1.3401	1.3401
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	16	0	0	5	0	0	22	0	0	2
Total Hourly Volume [veh/h]	240	7	16	7	12	5	7	197	22	25	457	2
Peak Hour Factor	0.9400	0.9400	0.9400	0.7200	0.7200	0.7200	0.8900	0.8900	0.8900	0.8600	0.8600	0.8600
Other 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
Total 15-Minute Volume [veh/h]	64	2	4	2	4	2	2	55	6	7	133	1
Total Analysis Volume [veh/h]	255	7	17	10	17	7	8	221	25	29	531	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	85	85	85	85	85	85	85	85	85	85
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	21	16	21	4	4	51	45	45	51	46
g / C, Green / Cycle	0.25	0.19	0.25	0.05	0.05	0.60	0.53	0.53	0.60	0.55
(v / s)_i Volume / Saturation Flow Rate	0.15	0.01	0.01	0.01	0.00	0.01	0.12	0.02	0.02	0.29
s, saturation flow rate [veh/h]	1662	1662	1440	1870	1589	920	1870	1589	1185	1869
c, Capacity [veh/h]	536	322	476	98	83	517	992	843	766	1020
d1, Uniform Delay [s]	27.77	27.99	23.93	38.43	38.25	8.26	10.60	9.49	7.02	12.23
k, delay calibration	0.32	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	1.91	0.10	0.02	0.83	0.43	0.05	0.52	0.07	0.02	1.91
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.48	0.07	0.02	0.17	0.08	0.02	0.22	0.03	0.04	0.52
d, Delay for Lane Group [s/veh]	29.68	28.09	23.95	39.26	38.68	8.31	11.11	9.56	7.04	14.14
Lane Group LOS	C	C	C	D	D	A	B	A	A	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.68	0.40	0.15	0.36	0.15	0.06	2.18	0.22	0.20	6.35
50th-Percentile Queue Length [ft/ln]	116.90	10.02	3.77	8.90	3.66	1.50	54.61	5.55	4.88	158.67
95th-Percentile Queue Length [veh/ln]	8.22	0.72	0.27	0.64	0.26	0.11	3.93	0.40	0.35	10.48
95th-Percentile Queue Length [ft/ln]	205.56	18.04	6.78	16.02	6.59	2.70	98.29	10.00	8.78	261.97

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.68	28.09	28.09	23.95	39.26	38.68	8.31	11.11	9.56	7.04	14.14	14.14
Movement LOS	C	C	C	C	D	D	A	B	A	A	B	B
d_A, Approach Delay [s/veh]	29.54			34.64			10.87			13.78		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	17.65											
Intersection LOS	B											
Intersection V/C	0.429											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1063			1063			1063			1063		
d_b, Bicycle Delay [s]	9.31			9.31			9.31			9.31		
I_b,int, Bicycle LOS Score for Intersection	2.046			1.624			2.015			2.490		
Bicycle LOS	B			A			B			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\pm.vistro

Scenario 6 2028 Back PM

Report File: C:\...\2028 Back PM.pdf

12/9/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.265	58.5	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.032	12.4	B
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.450	16.0	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 58.5
Level Of Service: F
Volume to Capacity (v/c): 0.265

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	20	0	6	2	0	7	15	636	44	10	405	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	1.3401	1.0000	1.0000	1.3401	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
Total Hourly Volume [veh/h]	20	0	6	2	0	7	15	852	44	10	543	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800
Other 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
Total 15-Minute Volume [veh/h]	6	0	2	1	0	2	4	232	12	3	139	0
Total Analysis Volume [veh/h]	24	0	7	2	0	8	16	926	48	10	554	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.27	0.00	0.02	0.02	0.00	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	58.51	37.05	16.30	47.54	39.13	11.87	8.60	0.00	0.00	10.16	0.00	0.00
Movement LOS	F	E	C	E	E	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	0.97	0.07	0.07	0.07	0.05	0.05	0.05	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	24.22	1.64	1.64	1.76	1.14	1.14	1.20	0.00	0.00	1.07	0.00	0.00
d_A, Approach Delay [s/veh]	48.98			19.00			0.14			0.18		
Approach LOS	E			C			A			A		
d_I, Intersection Delay [s/veh]	1.22											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.4
Level Of Service: B
Volume to Capacity (v/c): 0.032

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	14	14	625	382	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.3401	1.3401	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	14	838	512	0
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	4	246	151	0
Total Analysis Volume [veh/h]	0	16	16	986	602	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.02	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	37.28	12.44	8.75	0.00	0.00	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.05	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.48	1.25	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.44		0.14		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.21					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Teller Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 16.0
 Level Of Service: B
 Volume to Capacity (v/c): 0.450

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	144	7	24	14	11	15	11	416	234	25	223	6
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.1262	1.1262	1.1262	1.1262	1.1262	1.1262	1.3401	1.3401	1.3401	1.3401	1.3401	1.3401
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	14	0	0	9	0	0	157	0	0	4
Total Hourly Volume [veh/h]	162	8	13	16	12	8	15	557	157	34	299	4
Peak Hour Factor	0.8400	0.8400	0.8400	0.7100	0.7100	0.7100	0.9000	0.9000	0.9000	0.9500	0.9500	0.9500
Other 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
Total 15-Minute Volume [veh/h]	48	2	4	6	4	3	4	155	44	9	79	1
Total Analysis Volume [veh/h]	193	10	15	23	17	11	17	619	174	36	315	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	83	83	83	83	83	83	83	83	83	83
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	19	13	19	5	5	51	45	45	51	46
g / C, Green / Cycle	0.23	0.16	0.23	0.06	0.06	0.62	0.55	0.55	0.62	0.56
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.02	0.01	0.01	0.02	0.33	0.11	0.05	0.17
s, saturation flow rate [veh/h]	1635	1691	1463	1870	1589	1107	1870	1589	776	1866
c, Capacity [veh/h]	495	269	451	110	94	717	1019	866	452	1038
d1, Uniform Delay [s]	27.62	29.65	24.95	36.92	36.84	6.37	12.80	9.62	8.43	9.81
k, delay calibration	0.17	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.77	0.15	0.05	0.64	0.55	0.06	2.70	0.52	0.07	0.77
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.09	0.05	0.15	0.12	0.02	0.61	0.20	0.08	0.31
d, Delay for Lane Group [s/veh]	28.39	29.80	25.00	37.57	37.39	6.43	15.50	10.14	8.50	10.58
Lane Group LOS	C	C	C	D	D	A	B	B	A	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.32	0.43	0.35	0.34	0.22	0.11	7.74	1.60	0.22	3.02
50th-Percentile Queue Length [ft/ln]	82.89	10.68	8.78	8.51	5.54	2.79	193.39	39.95	5.56	75.46
95th-Percentile Queue Length [veh/ln]	5.97	0.77	0.63	0.61	0.40	0.20	12.30	2.88	0.40	5.43
95th-Percentile Queue Length [ft/ln]	149.20	19.23	15.81	15.32	9.97	5.02	307.43	71.91	10.00	135.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.39	29.80	29.80	25.00	37.57	37.39	6.43	15.50	10.14	8.50	10.58	10.58
Movement LOS	C	C	C	C	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	28.55			31.86			14.16			10.37		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	16.04											
Intersection LOS	B											
Intersection V/C	0.450											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1091			1091			1091			1091		
d_b, Bicycle Delay [s]	8.53			8.53			8.53			8.53		
I_b,int, Bicycle LOS Score for Intersection	1.942			1.659			3.155			2.152		
Bicycle LOS	A			A			C			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\AM.vistro

Scenario 3 2028 Total AM

Report File: C:\...\2028 Total AM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.383	36.4	E
2	Site Access	Two-way stop	HCM 7th Edition	SB Left	0.205	27.0	D
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.448	18.5	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 36.4
Level Of Service: E
Volume to Capacity (v/c): 0.383

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
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	1.3401	1.0000	1.0000	1.3401	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	31	0	0	29	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
Total Hourly Volume [veh/h]	44	0	9	3	0	10	4	232	6	1	739	1
Peak Hour Factor	0.6300	0.6300	0.6300	0.8300	0.8300	0.8300	0.8900	0.8900	0.8900	0.9000	0.9000	0.9000
Other 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
Total 15-Minute Volume [veh/h]	17	0	4	1	0	3	1	65	2	0	205	0
Total Analysis Volume [veh/h]	70	0	14	4	0	12	4	261	7	1	821	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.38	0.00	0.02	0.02	0.00	0.03	0.00	0.00	0.00	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	36.39	21.99	9.71	24.97	22.37	14.94	9.48	0.00	0.00	7.78	0.00	0.00
Movement LOS	E	C	A	C	C	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.66	0.05	0.05	0.07	0.10	0.10	0.01	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	41.59	1.37	1.37	1.66	2.48	2.48	0.37	0.00	0.00	0.06	0.00	0.00
d_A, Approach Delay [s/veh]	31.94			17.45			0.14			0.01		
Approach LOS	D			C			A			A		
d_I, Intersection Delay [s/veh]	2.52											
Intersection LOS	E											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 27.0
Level Of Service: D
Volume to Capacity (v/c): 0.205

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	5	5	158	563	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.3401	1.3401	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	29	31	0	0	38
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-25	-30	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	34	36	187	724	38
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	10	11	55	213	11
Total Analysis Volume [veh/h]	42	40	42	220	852	45
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.20	0.11	0.06	0.00	0.01	0.00
d_M, Delay for Movement [s/veh]	26.99	16.27	10.04	0.00	0.00	0.00
Movement LOS	D	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.74	0.37	0.18	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	18.61	9.31	4.40	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	21.76		1.61		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	1.78					
Intersection LOS	D					

Intersection Level Of Service Report
Intersection 3: Teller Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 18.5
Level Of Service: B
Volume to Capacity (v/c): 0.448

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
Base Volume Input [veh/h]	213	6	28	6	11	9	5	147	33	19	341	3
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.1262	1.1262	1.1262	1.1262	1.1262	1.1262	1.3401	1.3401	1.3401	1.3401	1.3401	1.3401
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	0	0	0	0	7	7	16	13	0	17	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	16	0	0	9	0	0	29	0	0	2
Total Hourly Volume [veh/h]	254	7	16	7	12	8	14	213	28	25	474	2
Peak Hour Factor	0.9400	0.9400	0.9400	0.7200	0.7200	0.7200	0.8900	0.8900	0.8900	0.8600	0.8600	0.8600
Other 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
Total 15-Minute Volume [veh/h]	68	2	4	2	4	3	4	60	8	7	138	1
Total Analysis Volume [veh/h]	270	7	17	10	17	11	16	239	31	29	551	2
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	86	86	86	86	86	86	86	86	86	86
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	22	18	22	5	5	51	45	45	51	46
g / C, Green / Cycle	0.26	0.20	0.26	0.06	0.06	0.59	0.52	0.52	0.59	0.53
(v / s)_i Volume / Saturation Flow Rate	0.16	0.01	0.01	0.01	0.01	0.02	0.13	0.02	0.02	0.30
s, saturation flow rate [veh/h]	1657	1662	1437	1870	1589	915	1870	1589	1162	1869
c, Capacity [veh/h]	551	341	489	109	92	494	977	831	734	993
d1, Uniform Delay [s]	27.64	27.60	23.59	38.54	38.45	9.01	11.24	10.00	7.48	13.44
k, delay calibration	0.36	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	2.26	0.09	0.02	0.66	0.57	0.12	0.59	0.08	0.02	2.26
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.49	0.07	0.02	0.16	0.12	0.03	0.24	0.04	0.04	0.56
d, Delay for Lane Group [s/veh]	29.90	27.68	23.60	39.20	39.02	9.13	11.84	10.09	7.50	15.69
Lane Group LOS	C	C	C	D	D	A	B	B	A	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	5.04	0.40	0.15	0.36	0.23	0.13	2.49	0.29	0.21	7.14
50th-Percentile Queue Length [ft/ln]	126.07	10.01	3.77	8.92	5.80	3.17	62.28	7.20	5.14	178.49
95th-Percentile Queue Length [veh/ln]	8.73	0.72	0.27	0.64	0.42	0.23	4.48	0.52	0.37	11.52
95th-Percentile Queue Length [ft/ln]	218.14	18.03	6.78	16.05	10.44	5.71	112.10	12.97	9.26	288.04

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	29.90	27.68	27.68	23.60	39.20	39.02	9.13	11.84	10.09	7.50	15.69	15.69
Movement LOS	C	C	C	C	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	29.72			35.04			11.50			15.28		
Approach LOS	C			D			B			B		
d_I, Intersection Delay [s/veh]	18.54											
Intersection LOS	B											
Intersection V/C	0.448											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1047			1047			1047			1047		
d_b, Bicycle Delay [s]	9.77			9.77			9.77			9.77		
I_b,int, Bicycle LOS Score for Intersection	2.071			1.637			2.079			2.523		
Bicycle LOS	B			A			B			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\pm.vistro

Scenario 3 2028 Total PM

Report File: C:\...\2028 Total PM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	0.281	62.9	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Left	0.223	47.8	E
3	Teller Street	Signalized	HCM 7th Edition	SB Right	0.459	16.6	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 62.9
Level Of Service: F
Volume to Capacity (v/c): 0.281

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	20	0	6	2	0	7	15	636	44	10	405	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	1.3401	1.0000	1.0000	1.3401	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	17	0	0	17	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
Total Hourly Volume [veh/h]	20	0	6	2	0	7	15	869	44	10	560	0
Peak Hour Factor	0.8300	0.8300	0.8300	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800
Other 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
Total 15-Minute Volume [veh/h]	6	0	2	1	0	2	4	236	12	3	143	0
Total Analysis Volume [veh/h]	24	0	7	2	0	8	16	945	48	10	571	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.28	0.00	0.02	0.02	0.00	0.02	0.02	0.01	0.00	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	62.87	38.73	16.59	50.19	40.92	12.03	8.65	0.00	0.00	10.24	0.00	0.00
Movement LOS	F	E	C	F	E	B	A	A	A	B	A	A
95th-Percentile Queue Length [veh/ln]	1.03	0.07	0.07	0.07	0.05	0.05	0.05	0.00	0.00	0.04	0.00	0.00
95th-Percentile Queue Length [ft/ln]	25.84	1.69	1.69	1.87	1.17	1.17	1.22	0.00	0.00	1.09	0.00	0.00
d_A, Approach Delay [s/veh]	52.42			19.66			0.14			0.18		
Approach LOS	F			C			A			A		
d_I, Intersection Delay [s/veh]	1.26											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 47.8
Level Of Service: E
Volume to Capacity (v/c): 0.223

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	1
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	130.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	14	14	625	382	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	1.3401	1.3401	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	17	17	0	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-12	-14	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	31	31	826	498	20
Peak Hour Factor	0.8500	0.8500	0.8500	0.8500	0.8500	0.8500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	9	9	243	146	6
Total Analysis Volume [veh/h]	24	36	36	972	586	24
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.22	0.07	0.04	0.01	0.01	0.00
d_M, Delay for Movement [s/veh]	47.80	12.59	8.86	0.00	0.00	0.00
Movement LOS	E	B	A	A	A	A
95th-Percentile Queue Length [veh/ln]	0.80	0.23	0.12	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	20.00	5.67	2.89	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	26.67		0.32		0.00	
Approach LOS	D		A		A	
d_I, Intersection Delay [s/veh]	1.14					
Intersection LOS	E					

Intersection Level Of Service Report
Intersection 3: Teller Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 16.6
Level Of Service: B
Volume to Capacity (v/c): 0.459

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	144	7	24	14	11	15	11	416	234	25	223	6
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.1262	1.1262	1.1262	1.1262	1.1262	1.1262	1.3401	1.3401	1.3401	1.3401	1.3401	1.3401
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	4	4	9	7	0	9	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	14	0	0	11	0	0	161	0	0	4
Total Hourly Volume [veh/h]	169	8	13	16	12	10	19	566	160	34	308	4
Peak Hour Factor	0.8400	0.8400	0.8400	0.7100	0.7100	0.7100	0.9000	0.9000	0.9000	0.9500	0.9500	0.9500
Other 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
Total 15-Minute Volume [veh/h]	50	2	4	6	4	4	5	157	44	9	81	1
Total Analysis Volume [veh/h]	201	10	15	23	17	14	21	629	178	36	324	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	15	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0	40.0	40.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C
C, Cycle Length [s]	83	83	83	83	83	83	83	83	83	83
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40
g_i, Effective Green Time [s]	20	14	20	5	5	51	45	45	51	46
g / C, Green / Cycle	0.23	0.17	0.23	0.06	0.06	0.62	0.54	0.54	0.62	0.55
(v / s)_i Volume / Saturation Flow Rate	0.12	0.01	0.02	0.01	0.01	0.02	0.34	0.11	0.05	0.18
s, saturation flow rate [veh/h]	1632	1691	1460	1870	1589	1103	1870	1589	768	1866
c, Capacity [veh/h]	505	282	459	118	100	703	1009	858	439	1023
d1, Uniform Delay [s]	27.52	29.40	24.73	36.95	36.94	6.67	13.32	9.96	8.86	10.33
k, delay calibration	0.19	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.89	0.13	0.04	0.56	0.63	0.08	2.90	0.55	0.08	0.83
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.09	0.05	0.14	0.14	0.03	0.62	0.21	0.08	0.32
d, Delay for Lane Group [s/veh]	28.41	29.53	24.78	37.51	37.57	6.75	16.22	10.50	8.94	11.15
Lane Group LOS	C	C	C	D	D	A	B	B	A	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No	Yes	No
50th-Percentile Queue Length [veh/ln]	3.49	0.43	0.35	0.34	0.28	0.14	8.16	1.68	0.23	3.24
50th-Percentile Queue Length [ft/ln]	87.15	10.67	8.78	8.52	7.08	3.58	204.05	42.12	5.76	81.02
95th-Percentile Queue Length [veh/ln]	6.27	0.77	0.63	0.61	0.51	0.26	12.85	3.03	0.41	5.83
95th-Percentile Queue Length [ft/ln]	156.87	19.21	15.81	15.34	12.75	6.44	321.18	75.81	10.37	145.83

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.41	29.53	29.53	24.78	37.51	37.57	6.75	16.22	10.50	8.94	11.15	11.15
Movement LOS	C	C	C	C	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	28.53			32.10			14.75			10.93		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	16.56											
Intersection LOS	B											
Intersection V/C	0.459											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1081			1081			1081			1081		
d_b, Bicycle Delay [s]	8.80			8.80			8.80			8.80		
I_b,int, Bicycle LOS Score for Intersection	1.956			1.667			3.191			2.167		
Bicycle LOS	A			A			C			B		

Sequence

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



Year 2042 Traffic Volume Scenarios

Ziggi's Coffee TIS

Vistro File: C:\...\AM.vistro

Scenario 7 2042 Back AM

Report File: C:\...\2042 Back AM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	SB Left	0.057	77.0	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.016	16.4	C
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.366	14.8	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 77.0
Level Of Service: F
Volume to Capacity (v/c): 0.057

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
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	2.6533	1.0000	1.0000	2.6533	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
Total Hourly Volume [veh/h]	44	0	9	3	0	10	4	398	6	1	1406	1
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other 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
Total 15-Minute Volume [veh/h]	12	0	2	1	0	3	1	108	2	0	382	0
Total Analysis Volume [veh/h]	48	0	10	3	0	11	4	433	7	1	1528	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.36	0.00	0.01	0.06	0.00	0.03	0.01	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	46.86	64.35	9.65	77.01	64.89	15.74	13.42	0.00	0.00	8.23	0.00	0.00
Movement LOS	E	F	A	F	F	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.49	0.04	0.04	0.18	0.10	0.10	0.03	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	37.33	0.97	0.97	4.38	2.46	2.46	0.70	0.00	0.00	0.07	0.00	0.00
d_A, Approach Delay [s/veh]	40.44			28.87			0.12			0.01		
Approach LOS	E			D			A			A		
d_I, Intersection Delay [s/veh]	1.37											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 16.4
Level Of Service: C
Volume to Capacity (v/c): 0.016

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	5	5	158	563	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	2.6533	2.6533	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	5	5	419	1494	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	114	406	0
Total Analysis Volume [veh/h]	0	5	5	455	1624	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.02	0.01	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	61.39	16.36	14.19	0.00	0.00	0.00
Movement LOS	F	C	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.05	0.04	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	1.18	0.96	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	16.36		0.15		0.00	
Approach LOS	C		A		A	
d_I, Intersection Delay [s/veh]	0.07					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 3: Teller Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 14.8
Level Of Service: B
Volume to Capacity (v/c): 0.366

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
Base Volume Input [veh/h]	213	6	28	6	11	9	5	147	33	19	341	3
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.4859	1.4859	1.4859	1.4859	1.4859	1.4859	2.6533	2.6533	2.6533	2.6533	2.6533	2.6533
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	21	0	0	7	0	0	44	0	0	4
Total Hourly Volume [veh/h]	316	9	21	9	16	6	13	390	44	50	905	4
Peak Hour Factor	0.9400	0.9400	0.9400	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other 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
Total 15-Minute Volume [veh/h]	84	2	6	2	4	2	4	106	12	14	246	1
Total Analysis Volume [veh/h]	336	10	22	10	17	7	14	424	48	54	984	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	30	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	83	83	83	83	83	83	83	83	83	83	83
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	18	13	18	4	4	52	45	45	52	47	47
g / C, Green / Cycle	0.22	0.16	0.22	0.05	0.05	0.63	0.55	0.55	0.63	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.11	0.02	0.01	0.01	0.00	0.02	0.12	0.03	0.05	0.26	0.26
s, saturation flow rate [veh/h]	3192	1668	1263	1870	1589	643	3560	1589	1002	1870	1867
c, Capacity [veh/h]	862	271	463	99	84	441	1938	865	700	1057	1056
d1, Uniform Delay [s]	27.77	29.57	25.23	37.42	37.25	6.91	9.75	8.85	6.09	10.61	10.61
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	0.19	0.02	0.82	0.42	0.13	0.26	0.12	0.05	1.49	1.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.39	0.12	0.02	0.17	0.08	0.03	0.22	0.06	0.08	0.47	0.47
d, Delay for Lane Group [s/veh]	28.06	29.76	25.25	38.24	37.67	7.04	10.01	8.98	6.14	12.10	12.10
Lane Group LOS	C	C	C	D	D	A	B	A	A	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.82	0.55	0.15	0.35	0.14	0.10	1.89	0.40	0.32	5.18	5.18
50th-Percentile Queue Length [ft/ln]	70.62	13.69	3.83	8.65	3.56	2.40	47.16	10.07	8.08	129.56	129.39
95th-Percentile Queue Length [veh/ln]	5.08	0.99	0.28	0.62	0.26	0.17	3.40	0.73	0.58	8.92	8.91
95th-Percentile Queue Length [ft/ln]	127.12	24.64	6.89	15.56	6.41	4.32	84.88	18.13	14.54	222.89	222.66

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	28.06	29.76	29.76	25.25	38.24	37.67	7.04	10.01	8.98	6.14	12.10	12.10
Movement LOS	C	C	C	C	D	D	A	B	A	A	B	B
d_A, Approach Delay [s/veh]	28.21			34.30			9.82			11.79		
Approach LOS	C			C			A			B		
d_I, Intersection Delay [s/veh]	14.82											
Intersection LOS	B											
Intersection V/C	0.366											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1090			1090			1090			1090		
d_b, Bicycle Delay [s]	8.54			8.54			8.54			8.54		
I_b,int, Bicycle LOS Score for Intersection	2.201			1.627			1.997			2.423		
Bicycle LOS	B			A			A			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\pm.vistro

Scenario 7 2042 Back PM

Report File: C:\...\2042 Back PM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	1.511	793.3	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Right	0.031	12.8	B
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.426	13.9	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 793.3
Level Of Service: F
Volume to Capacity (v/c): 1.511

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	20	0	6	2	0	7	15	636	44	10	405	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	2.6533	1.0000	1.0000	2.6533	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
Total Hourly Volume [veh/h]	20	0	6	2	0	7	15	1687	44	10	1075	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800
Other 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
Total 15-Minute Volume [veh/h]	5	0	2	1	0	2	4	458	12	3	274	0
Total Analysis Volume [veh/h]	22	0	7	2	0	8	16	1834	48	10	1097	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.51	0.00	0.03	0.07	0.00	0.02	0.03	0.02	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	793.27	294.02	18.99	138.64	304.54	12.63	10.84	0.00	0.00	16.81	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	3.37	0.08	0.08	0.21	0.05	0.05	0.08	0.00	0.00	0.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	84.37	2.03	2.03	5.25	1.27	1.27	1.95	0.00	0.00	2.46	0.00	0.00
d_A, Approach Delay [s/veh]	606.37			37.83			0.09			0.15		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	6.01											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 12.8
Level Of Service: B
Volume to Capacity (v/c): 0.031

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	14	14	625	382	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	2.6533	2.6533	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	14	14	1658	1014	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	4	4	451	276	0
Total Analysis Volume [veh/h]	0	15	15	1802	1102	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.03	0.02	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	79.51	12.77	10.86	0.00	0.00	0.00
Movement LOS	F	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	0.00	0.10	0.07	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	0.00	2.43	1.83	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	12.77		0.09		0.00	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	0.12					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 3: Teller Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 13.9
 Level Of Service: B
 Volume to Capacity (v/c): 0.426

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	144	7	24	14	11	15	11	416	234	25	223	6
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.4859	1.4859	1.4859	1.4859	1.4859	1.4859	2.6533	2.6533	2.6533	2.6533	2.6533	2.6533
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	18	0	0	11	0	0	311	0	0	8
Total Hourly Volume [veh/h]	214	10	18	21	16	11	29	1104	310	66	592	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9500	0.9500	0.9500
Other 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
Total 15-Minute Volume [veh/h]	58	3	5	6	4	3	8	300	84	17	156	2
Total Analysis Volume [veh/h]	233	11	20	23	17	12	32	1200	337	69	623	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	30	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	81	81	81	81	81	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	16	11	16	5	5	52	45	45	52	46	46
g / C, Green / Cycle	0.20	0.13	0.20	0.06	0.06	0.65	0.56	0.56	0.65	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.07	0.02	0.02	0.01	0.01	0.04	0.34	0.21	0.14	0.17	0.17
s, saturation flow rate [veh/h]	3127	1679	1275	1870	1589	873	3560	1589	481	1870	1862
c, Capacity [veh/h]	788	220	446	114	97	623	1979	884	364	1065	1060
d1, Uniform Delay [s]	27.72	31.16	26.21	36.03	35.97	5.56	12.04	10.13	8.14	9.03	9.03
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.25	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.29	0.05	0.60	0.57	0.16	1.39	1.25	0.58	0.71	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.14	0.05	0.15	0.12	0.05	0.61	0.38	0.19	0.30	0.30
d, Delay for Lane Group [s/veh]	27.93	31.45	26.26	36.63	36.54	5.71	13.43	11.38	8.72	9.74	9.75
Lane Group LOS	C	C	C	D	D	A	B	B	A	A	A
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.91	0.54	0.36	0.33	0.24	0.19	6.78	3.33	0.42	2.78	2.77
50th-Percentile Queue Length [ft/ln]	47.67	13.59	8.93	8.29	5.89	4.81	169.47	83.24	10.57	69.59	69.33
95th-Percentile Queue Length [veh/ln]	3.43	0.98	0.64	0.60	0.42	0.35	11.05	5.99	0.76	5.01	4.99
95th-Percentile Queue Length [ft/ln]	85.80	24.46	16.08	14.92	10.60	8.66	276.22	149.84	19.03	125.26	124.80

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.93	31.45	31.45	26.26	36.63	36.54	5.71	13.43	11.38	8.72	9.74	9.75
Movement LOS	C	C	C	C	D	D	A	B	B	A	A	A
d_A, Approach Delay [s/veh]	28.34			32.02			12.84			9.64		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	13.94											
Intersection LOS	B											
Intersection V/C	0.426											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1113			1113			1113			1113		
d_b, Bicycle Delay [s]	7.94			7.94			7.94			7.94		
I_b,int, Bicycle LOS Score for Intersection	2.025			1.664			3.111			2.144		
Bicycle LOS	B			A			C			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\AM.vistro

Scenario 5 2042 Total AM

Report File: C:\...\2042 Total AM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	SB Left	0.062	83.8	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Left	0.715	165.9	F
3	Teller Street	Signalized	HCM 7th Edition	SB Thru	0.377	15.4	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 83.8
Level Of Service: F
Volume to Capacity (v/c): 0.062

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	44	0	9	3	0	10	4	150	6	1	530	1
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	2.6533	1.0000	1.0000	2.6533	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	31	0	0	29	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
Total Hourly Volume [veh/h]	44	0	9	3	0	10	4	429	6	1	1435	1
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other 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
Total 15-Minute Volume [veh/h]	12	0	2	1	0	3	1	117	2	0	390	0
Total Analysis Volume [veh/h]	48	0	10	3	0	11	4	466	7	1	1560	1
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.00	0.01	0.06	0.00	0.03	0.01	0.00	0.00	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	52.62	70.24	9.77	83.81	70.82	16.02	13.66	0.00	0.00	8.32	0.00	0.00
Movement LOS	F	F	A	F	F	C	B	A	A	A	A	A
95th-Percentile Queue Length [veh/ln]	1.66	0.04	0.04	0.19	0.10	0.10	0.03	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	41.38	0.99	0.99	4.77	2.52	2.52	0.72	0.00	0.00	0.07	0.00	0.00
d_A, Approach Delay [s/veh]	45.23			30.54			0.11			0.01		
Approach LOS	E			D			A			A		
d_I, Intersection Delay [s/veh]	1.48											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 165.9
Level Of Service: F
Volume to Capacity (v/c): 0.715

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	5	5	158	563	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	2.6533	2.6533	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	36	29	31	0	0	38
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-25	-30	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	34	36	394	1464	38
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	10	9	10	107	398	10
Total Analysis Volume [veh/h]	39	37	39	428	1591	41
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.71	0.12	0.10	0.00	0.02	0.00
d_M, Delay for Movement [s/veh]	165.95	17.71	15.15	0.00	0.00	0.00
Movement LOS	F	C	C	A	A	A
95th-Percentile Queue Length [veh/ln]	2.97	0.39	0.33	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	74.32	9.70	8.18	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	93.78		1.26		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	3.55					
Intersection LOS	F					

Intersection Level Of Service Report
Intersection 3: Teller Street

Control Type: Signalized
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 15.4
Level Of Service: B
Volume to Capacity (v/c): 0.377

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony road		
Base Volume Input [veh/h]	213	6	28	6	11	9	5	147	33	19	341	3
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.4859	1.4859	1.4859	1.4859	1.4859	1.4859	2.6533	2.6533	2.6533	2.6533	2.6533	2.6533
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	0	0	0	0	7	7	16	13	0	17	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	21	0	0	10	0	0	51	0	0	4
Total Hourly Volume [veh/h]	330	9	21	9	16	10	20	406	50	50	922	4
Peak Hour Factor	0.9400	0.9400	0.9400	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other 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
Total 15-Minute Volume [veh/h]	88	2	6	2	4	3	5	110	14	14	251	1
Total Analysis Volume [veh/h]	351	10	22	10	17	11	22	441	54	54	1002	4
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	30	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	84	84	84	84	84	84	84	84	84	84	84
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	19	14	19	5	5	52	45	45	52	46	46
g / C, Green / Cycle	0.23	0.17	0.23	0.06	0.06	0.62	0.54	0.54	0.62	0.55	0.55
(v / s)_i Volume / Saturation Flow Rate	0.11	0.02	0.01	0.01	0.01	0.03	0.12	0.03	0.05	0.27	0.27
s, saturation flow rate [veh/h]	3180	1668	1268	1870	1589	646	3560	1589	985	1870	1867
c, Capacity [veh/h]	885	286	473	110	93	433	1916	855	679	1034	1033
d1, Uniform Delay [s]	27.60	29.25	24.96	37.38	37.30	7.38	10.18	9.24	6.41	11.43	11.43
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.11	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.29	0.17	0.02	0.65	0.55	0.22	0.28	0.14	0.05	1.64	1.64
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.40	0.11	0.02	0.15	0.12	0.05	0.23	0.06	0.08	0.49	0.49
d, Delay for Lane Group [s/veh]	27.89	29.42	24.98	38.03	37.86	7.60	10.47	9.38	6.46	13.06	13.07
Lane Group LOS	C	C	C	D	D	A	B	A	A	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	2.97	0.55	0.15	0.35	0.22	0.16	2.04	0.47	0.34	5.61	5.60
50th-Percentile Queue Length [ft/ln]	74.13	13.67	3.83	8.63	5.61	3.95	51.02	11.76	8.45	140.25	140.07
95th-Percentile Queue Length [veh/ln]	5.34	0.98	0.28	0.62	0.40	0.28	3.67	0.85	0.61	9.49	9.48
95th-Percentile Queue Length [ft/ln]	133.44	24.61	6.89	15.53	10.10	7.12	91.83	21.17	15.20	237.36	237.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.89	29.42	29.42	24.98	38.03	37.86	7.60	10.47	9.38	6.46	13.07	13.07
Movement LOS	C	C	C	C	D	D	A	B	A	A	B	B
d_A, Approach Delay [s/veh]	28.02			34.54			10.23			12.73		
Approach LOS	C			C			B			B		
d_I, Intersection Delay [s/veh]	15.43											
Intersection LOS	B											
Intersection V/C	0.377											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1078			1078			1078			1078		
d_b, Bicycle Delay [s]	8.88			8.88			8.88			8.88		
I_b,int, Bicycle LOS Score for Intersection	2.226			1.639			2.028			2.437		
Bicycle LOS	B			A			B			B		

Sequence

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



Ziggi's Coffee TIS

Vistro File: C:\...\pm.vistro

Scenario 5 2042 Total PM

Report File: C:\...\2042 Total PM.pdf

12/11/2022

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Fox Ridge Parkway	Two-way stop	HCM 7th Edition	NB Left	1.586	846.7	F
2	Site Access	Two-way stop	HCM 7th Edition	SB Left	0.491	146.4	F
3	Teller Street	Signalized	HCM 7th Edition	SB Right	0.430	14.2	B

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Fox Ridge Parkway

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 846.7
Level Of Service: F
Volume to Capacity (v/c): 1.586

Intersection Setup

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Entry Pocket Length [ft]	75.00	100.00	100.00	50.00	100.00	100.00	175.00	100.00	175.00	175.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			No			No		

Volumes

Name	Muntjac Street			Fox Ridge Parkway			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	20	0	6	2	0	7	15	636	44	10	405	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	2.6533	1.0000	1.0000	2.6533	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	17	0	0	17	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
Total Hourly Volume [veh/h]	20	0	6	2	0	7	15	1704	44	10	1092	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9800	0.9800	0.9800
Other 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
Total 15-Minute Volume [veh/h]	5	0	2	1	0	2	4	463	12	3	279	0
Total Analysis Volume [veh/h]	22	0	7	2	0	8	16	1852	48	10	1114	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	1.59	0.00	0.03	0.07	0.00	0.02	0.03	0.02	0.00	0.03	0.01	0.00
d_M, Delay for Movement [s/veh]	846.73	310.14	19.19	145.56	321.27	12.73	10.93	0.00	0.00	17.01	0.00	0.00
Movement LOS	F	F	C	F	F	B	B	A	A	C	A	A
95th-Percentile Queue Length [veh/ln]	3.43	0.08	0.08	0.22	0.05	0.05	0.08	0.00	0.00	0.10	0.00	0.00
95th-Percentile Queue Length [ft/ln]	85.63	2.06	2.06	5.49	1.29	1.29	1.98	0.00	0.00	2.50	0.00	0.00
d_A, Approach Delay [s/veh]	646.98			39.29			0.09			0.15		
Approach LOS	F			E			A			A		
d_I, Intersection Delay [s/veh]	6.33											
Intersection LOS	F											

Intersection Level Of Service Report
Intersection 2: Site Access

Control Type: Two-way stop
Analysis Method: HCM 7th Edition
Analysis Period: 15 minutes

Delay (sec / veh): 146.4
Level Of Service: F
Volume to Capacity (v/c): 0.491

Intersection Setup

Name	Site Access		East Harmony Road		East Harmony Road	
Approach	Southbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Left	Thru	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Entry Pocket	0	1	1	0	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		No	

Volumes

Name	Site Access		East Harmony Road		East Harmony Road	
Base Volume Input [veh/h]	0	14	14	625	382	0
Base Volume Adjustment Factor	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
Growth Factor	1.0000	1.0000	1.0000	2.6533	2.6533	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	20	17	17	0	0	20
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	-12	-14	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	31	31	1646	1000	20
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	8	8	447	272	5
Total Analysis Volume [veh/h]	22	34	34	1789	1087	22
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Stop	Free	Free
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.49	0.07	0.05	0.02	0.01	0.00
d_M, Delay for Movement [s/veh]	146.38	13.15	11.09	0.00	0.00	0.00
Movement LOS	F	B	B	A	A	A
95th-Percentile Queue Length [veh/ln]	1.78	0.23	0.17	0.00	0.00	0.00
95th-Percentile Queue Length [ft/ln]	44.50	5.75	4.30	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	65.49		0.21		0.00	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	1.35					
Intersection LOS	F					

Intersection Level Of Service Report

Intersection 3: Teller Street

Control Type: Signalized
 Analysis Method: HCM 7th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 14.2
 Level Of Service: B
 Volume to Capacity (v/c): 0.430

Intersection Setup

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
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 Entry Pocket	1	0	0	1	0	1	1	0	1	1	0	0
Entry Pocket Length [ft]	100.00	100.00	100.00	200.00	100.00	200.00	250.00	100.00	300.00	100.00	100.00	100.00
No. of Lanes in Exit Pocket	0	0	0	0	0	0	0	0	1	0	0	0
Exit Pocket Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	49.21	0.00	0.00	0.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	No			No			No			No		

Volumes

Name	Teller Street			Teller Street			East Harmony Road			East Harmony Road		
Base Volume Input [veh/h]	144	7	24	14	11	15	11	416	234	25	223	6
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
Proportion of CAVs [%]	0.00											
Growth Factor	1.4859	1.4859	1.4859	1.4859	1.4859	1.4859	2.6533	2.6533	2.6533	2.6533	2.6533	2.6533
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	7	0	0	0	0	4	4	9	7	0	9	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	18	0	0	13	0	0	314	0	0	8
Total Hourly Volume [veh/h]	221	10	18	21	16	13	33	1113	314	66	601	8
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9500	0.9500	0.9500
Other 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
Total 15-Minute Volume [veh/h]	60	3	5	6	4	4	9	302	85	17	158	2
Total Analysis Volume [veh/h]	240	11	20	23	17	14	36	1210	341	69	633	8
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	Lead Green - Beginning of First Green
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss	ProtPer	Permiss	Permiss
Signal Group	3	8	0	7	4	0	5	2	0	1	6	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-
Minimum Green [s]	4	10	0	4	10	0	4	15	0	4	10	0
Maximum Green [s]	30	45	0	15	45	0	15	45	0	15	45	0
Amber [s]	3.0	4.1	0.0	3.0	4.1	0.0	3.0	4.4	0.0	3.0	4.4	0.0
All red [s]	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0	1.0	2.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Delayed Vehicle Green [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	4.1	0.0	2.0	4.1	0.0	2.0	4.4	0.0	2.0	4.4	0.0
Minimum Recall	No	No		No	No		No	No		No	No	
Maximum Recall	No	No		No	No		No	Yes		No	Yes	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	40.0	40.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	R	L	C	R	L	C	C
C, Cycle Length [s]	81	81	81	81	81	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	6.10	6.10	6.10	6.10	6.10	6.40	6.40	6.40	6.40	6.40	6.40
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	4.10	0.00	4.10	4.10	0.00	4.40	4.40	0.00	4.40	4.40
g_i, Effective Green Time [s]	17	11	17	5	5	52	45	45	52	46	46
g / C, Green / Cycle	0.20	0.13	0.20	0.06	0.06	0.64	0.55	0.55	0.64	0.57	0.57
(v / s)_i Volume / Saturation Flow Rate	0.08	0.02	0.02	0.01	0.01	0.04	0.34	0.21	0.14	0.17	0.17
s, saturation flow rate [veh/h]	3122	1679	1278	1870	1589	869	3560	1589	478	1870	1862
c, Capacity [veh/h]	799	227	451	119	101	615	1969	879	359	1055	1051
d1, Uniform Delay [s]	27.64	31.00	26.08	36.01	36.00	5.72	12.32	10.36	8.40	9.32	9.33
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.50	0.50	0.50	0.26	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.21	0.27	0.05	0.54	0.62	0.18	1.45	1.29	0.62	0.74	0.75
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.14	0.05	0.14	0.14	0.06	0.61	0.39	0.19	0.30	0.30
d, Delay for Lane Group [s/veh]	27.85	31.27	26.12	36.55	36.62	5.90	13.77	11.65	9.02	10.07	10.07
Lane Group LOS	C	C	C	D	D	A	B	B	A	B	B
Critical Lane Group	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	1.97	0.54	0.36	0.33	0.28	0.22	6.98	3.44	0.43	2.91	2.89
50th-Percentile Queue Length [ft/ln]	49.20	13.57	8.93	8.29	6.88	5.55	174.58	85.90	10.85	72.63	72.36
95th-Percentile Queue Length [veh/ln]	3.54	0.98	0.64	0.60	0.50	0.40	11.32	6.19	0.78	5.23	5.21
95th-Percentile Queue Length [ft/ln]	88.57	24.43	16.08	14.91	12.39	9.98	282.92	154.63	19.54	130.73	130.25

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	27.85	31.27	31.27	26.12	36.55	36.62	5.90	13.77	11.65	9.02	10.07	10.07
Movement LOS	C	C	C	C	D	D	A	B	B	A	B	B
d_A, Approach Delay [s/veh]	28.24			32.13			13.14			9.97		
Approach LOS	C			C			B			A		
d_I, Intersection Delay [s/veh]	14.23											
Intersection LOS	B											
Intersection V/C	0.430											

Other Modes

g_Walk,mi, Effective Walk Time [s]	0.0			0.0			0.0			0.0		
M_corner, Corner Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00			0.00			0.00			0.00		
d_p, Pedestrian Delay [s]	0.00			0.00			0.00			0.00		
I_p,int, Pedestrian LOS Score for Intersection	0.000			0.000			0.000			0.000		
Crosswalk LOS	F			F			F			F		
s_b, Saturation Flow Rate of the bicycle lane	2000			2000			2000			2000		
c_b, Capacity of the bicycle lane [bicycles/h]	1108			1108			1108			1108		
d_b, Bicycle Delay [s]	8.09			8.09			8.09			8.09		
I_b,int, Bicycle LOS Score for Intersection	2.036			1.670			3.128			2.152		
Bicycle LOS	B			A			C			B		

Sequence

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



Appendix C

Trip Generation and Pass-By Traffic Information

Land Use: 822

Strip Retail Plaza (<40k)

Description

A strip retail plaza is an integrated group of commercial establishments that is planned, developed, owned, and managed as a unit. Each study site in this land use has less than 40,000 square feet of gross leasable area (GLA). Because a strip retail plaza is open-air, the GLA is the same as the gross floor area of the building.

The 40,000 square feet GFA threshold between strip retail plaza and shopping plaza (Land Use 821) was selected based on an examination of the overall shopping center/plaza database. No shopping plaza with a supermarket as its anchor is smaller than 40,000 square feet GLA.

Shopping center (>150k) (Land use 820), shopping plaza (40-150k) (Land Use 821), and factory outlet center (Land Use 823) are related uses.

Additional Data

The technical appendices provide supporting information on time-of-day distributions for this land use. The appendices can be accessed through either the ITETripGen web app or the trip generation resource page on the ITE website (<https://www.ite.org/technical-resources/topics/trip-and-parking-generation/>).

The sites were surveyed in the 1980s, the 1990s, the 2000s, and the 2010s in Alberta (CAN), California, Delaware, Florida, New Jersey, Ontario (CAN), South Dakota, Vermont, Washington, and Wisconsin.

Source Numbers

304, 358, 423, 428, 437, 507, 715, 728, 936, 960, 961, 974, 1009

Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 4

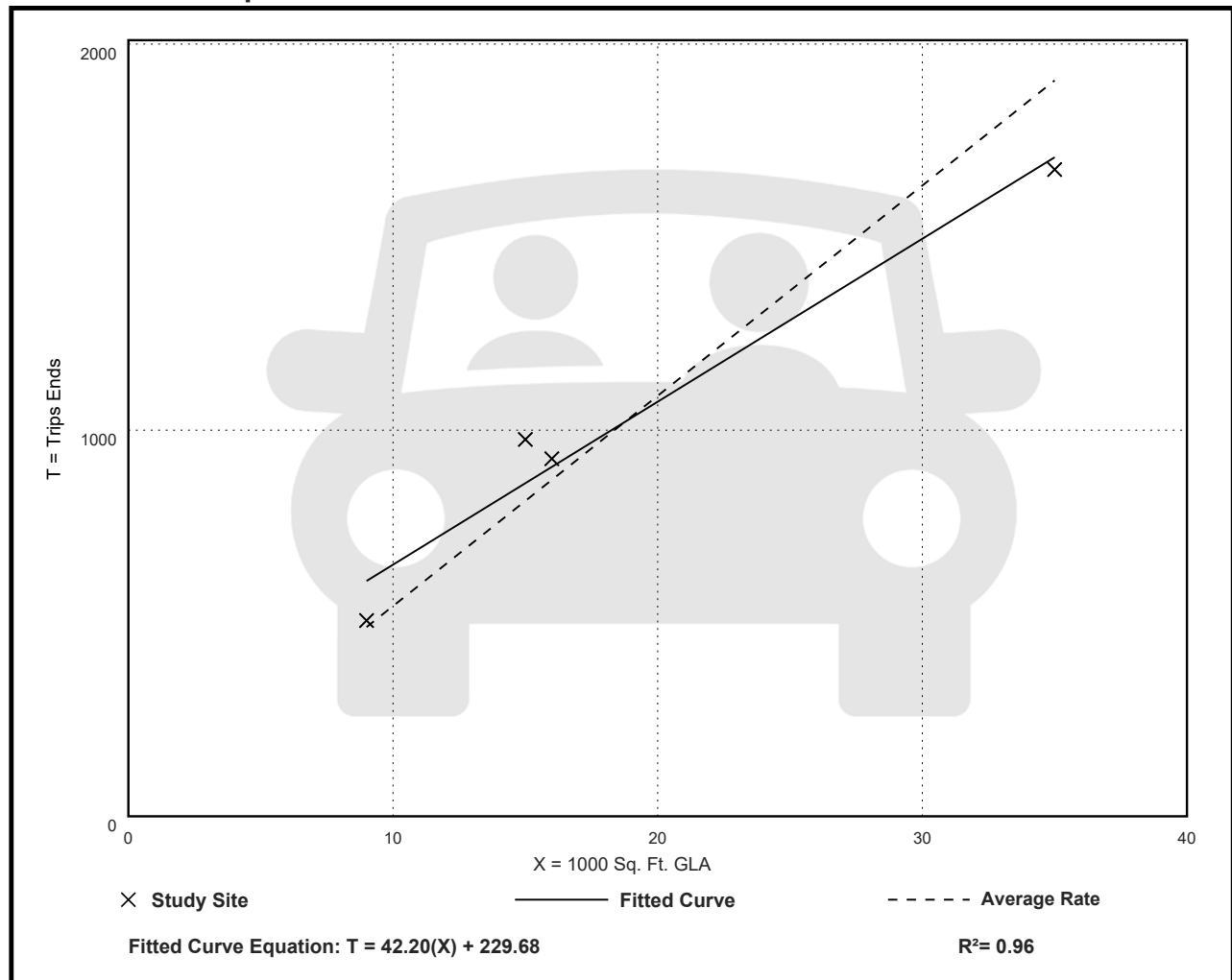
Avg. 1000 Sq. Ft. GLA: 19

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
54.45	47.86 - 65.07	7.81

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 5

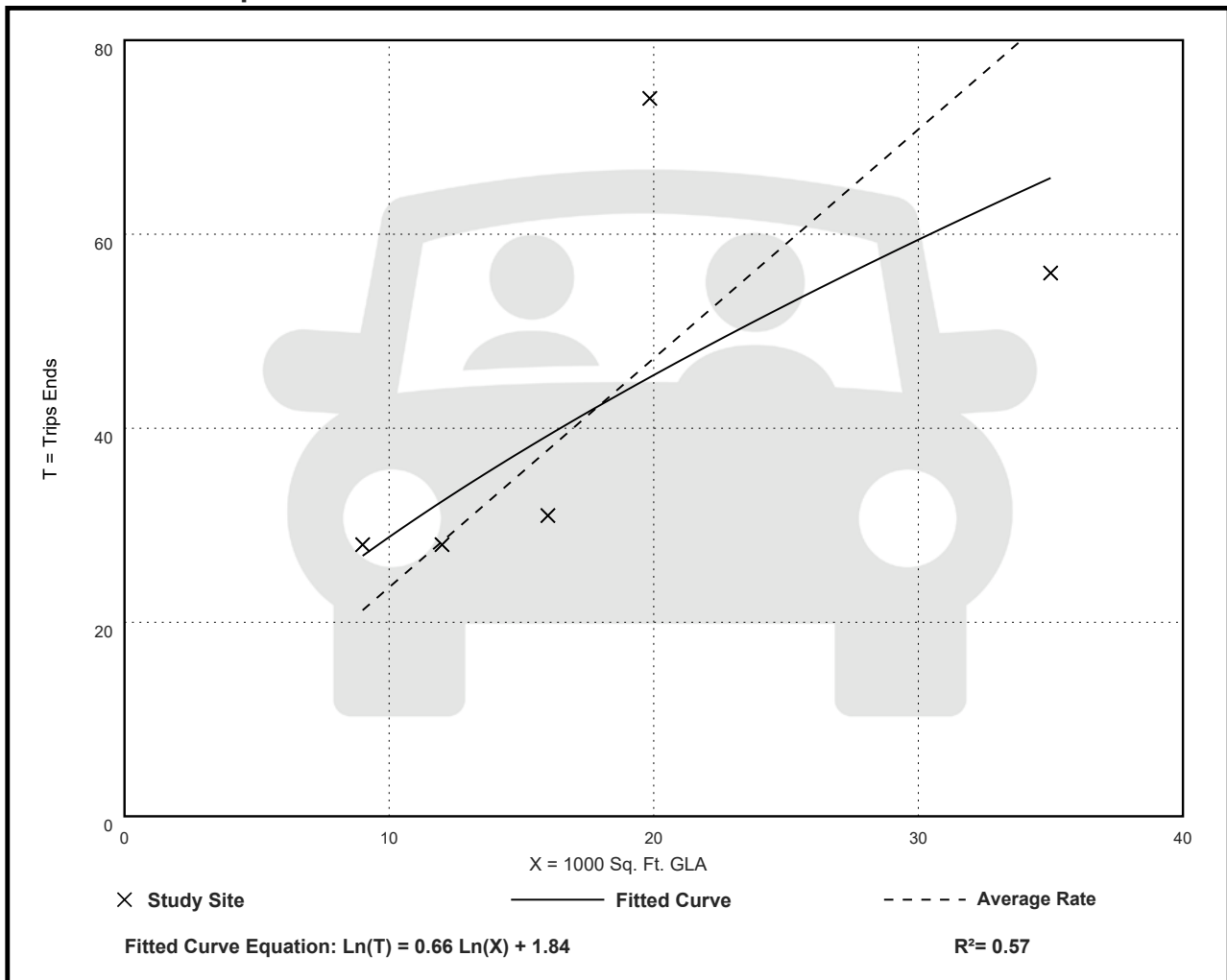
Avg. 1000 Sq. Ft. GLA: 18

Directional Distribution: 60% entering, 40% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
2.36	1.60 - 3.73	0.94

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 25

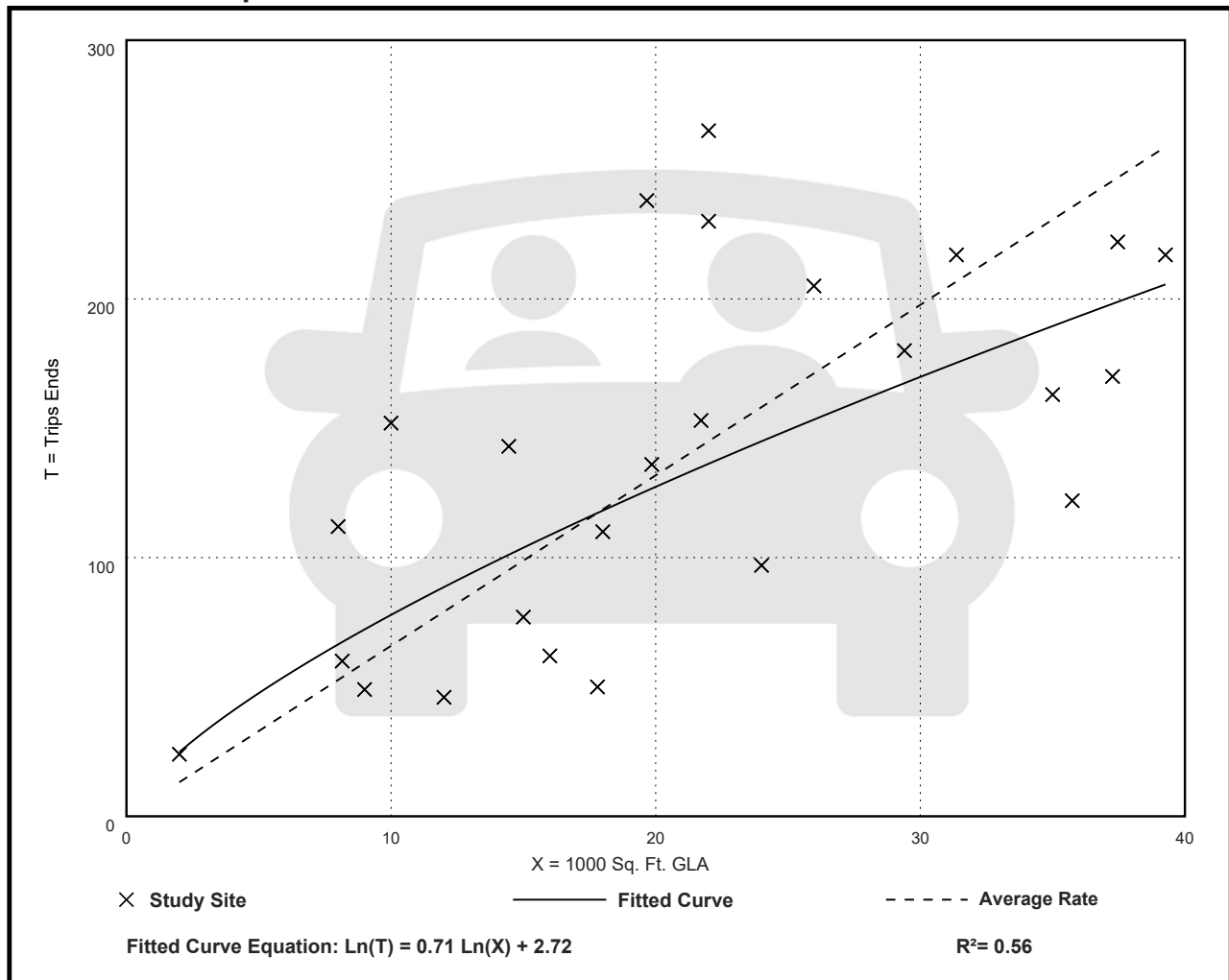
Avg. 1000 Sq. Ft. GLA: 21

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.59	2.81 - 15.20	2.94

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 6

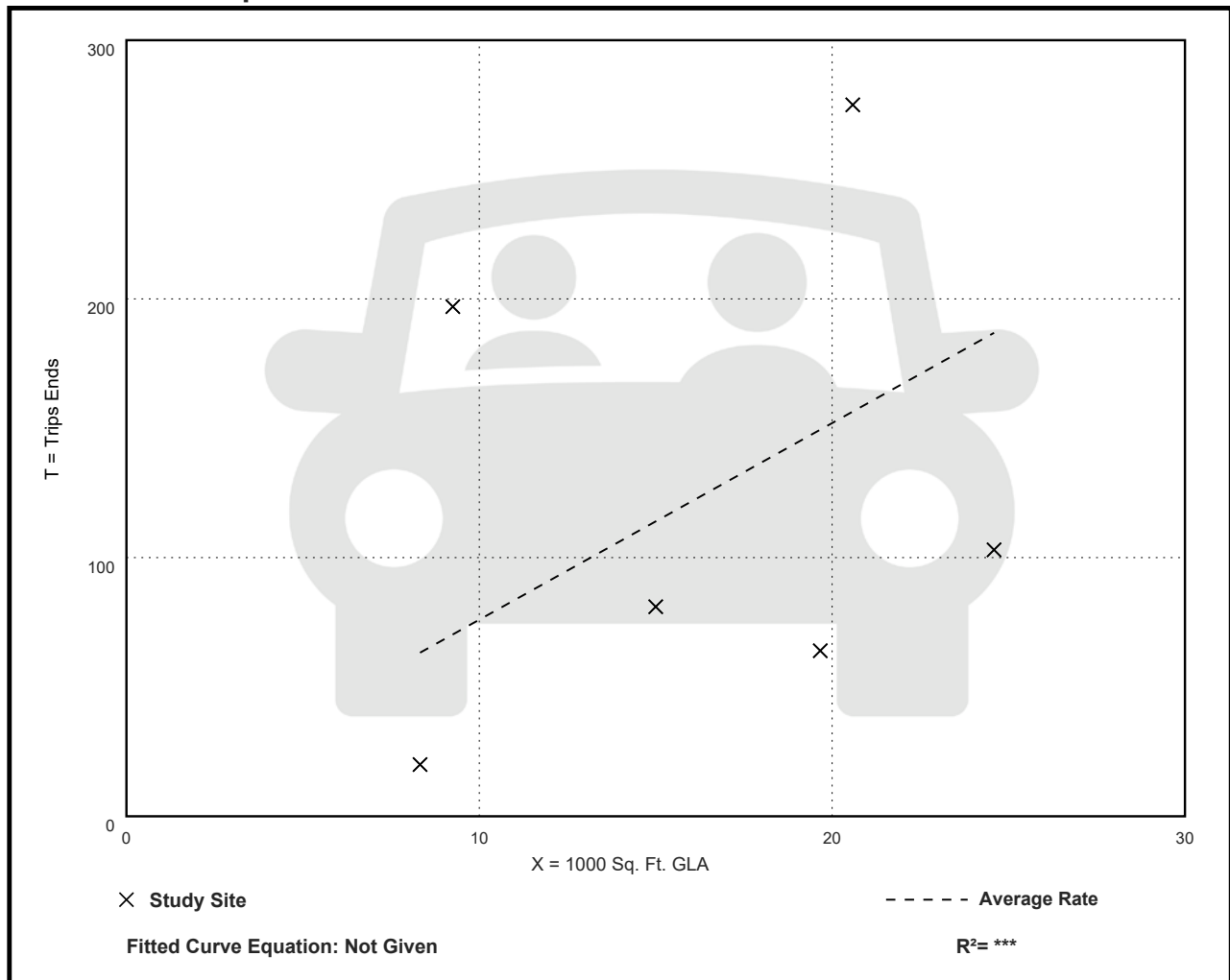
Avg. 1000 Sq. Ft. GLA: 16

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
7.60	2.40 - 21.30	6.45

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 5

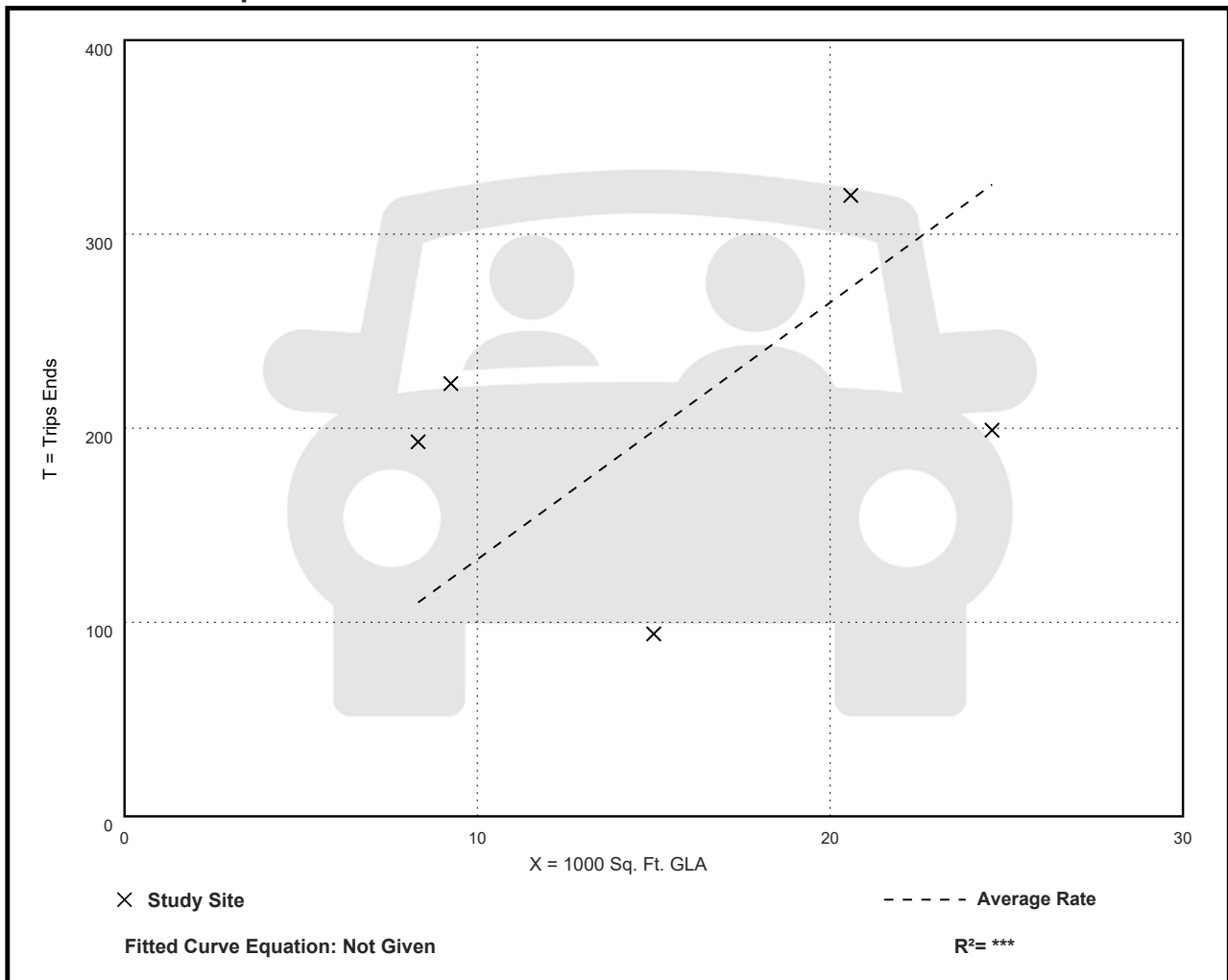
Avg. 1000 Sq. Ft. GLA: 16

Directional Distribution: 54% entering, 46% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
13.24	6.27 - 24.11	7.40

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: 1000 Sq. Ft. GLA

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 12

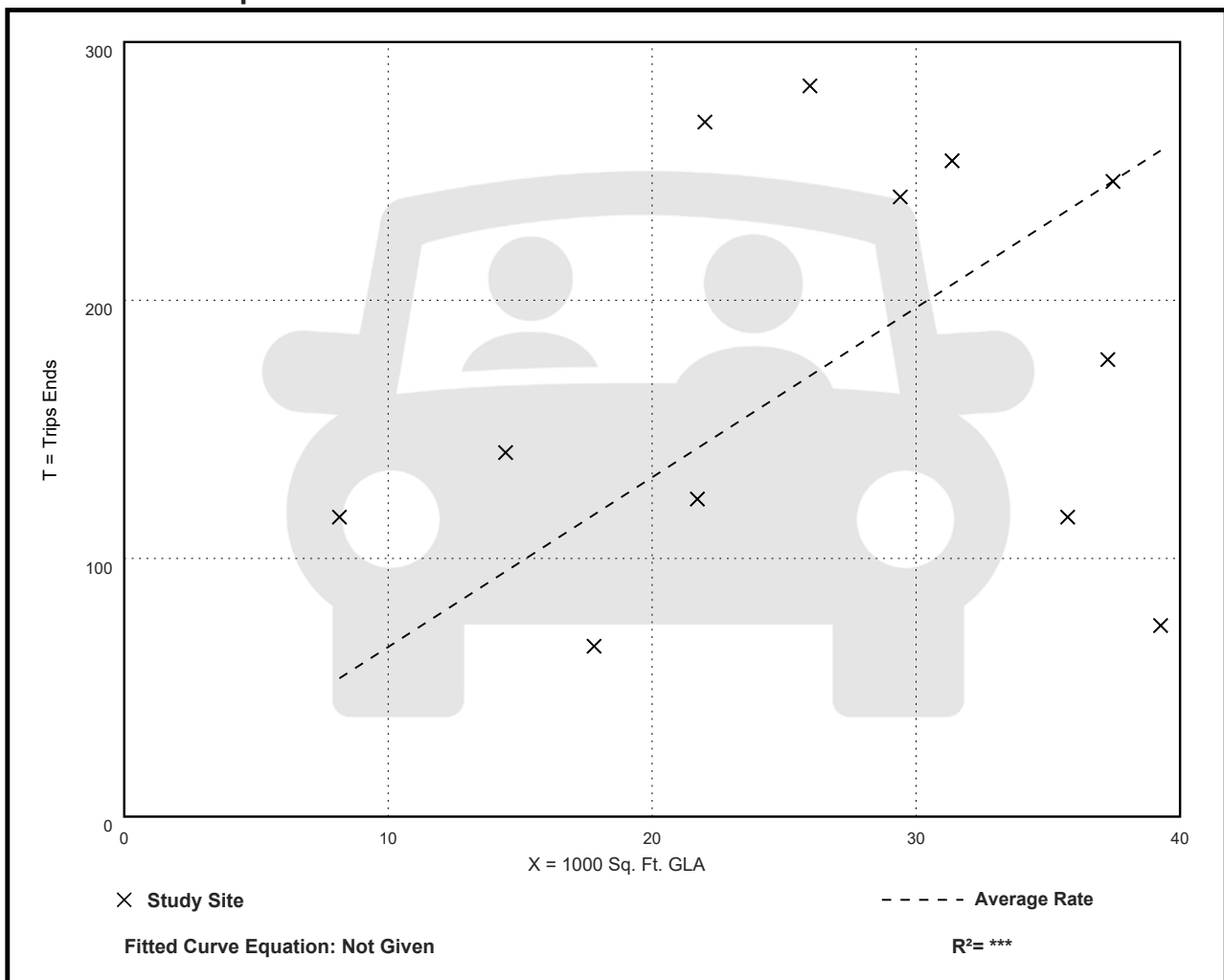
Avg. 1000 Sq. Ft. GLA: 27

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
6.57	1.88 - 14.23	3.45

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: Employees

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Employees: 21

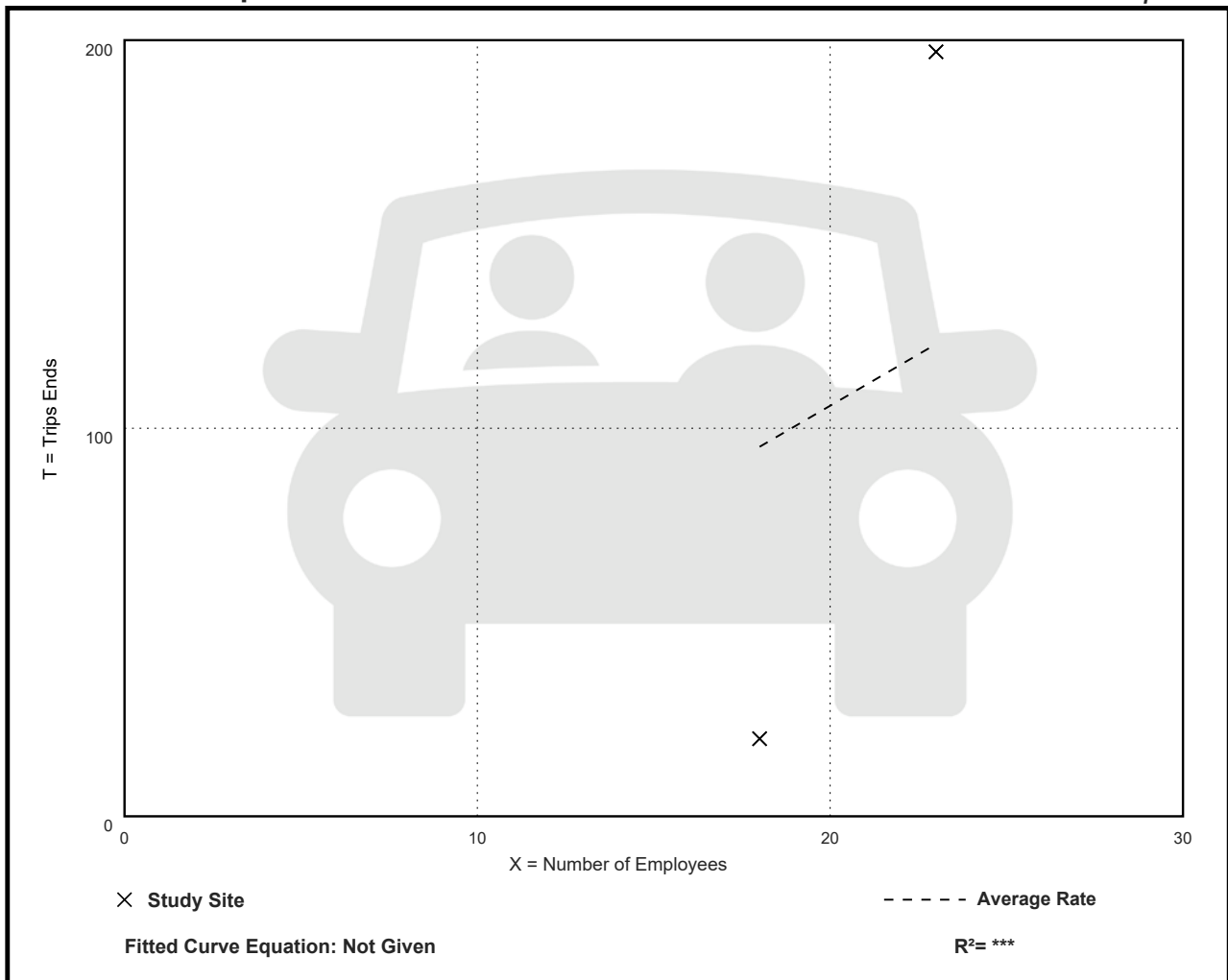
Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
5.29	1.11 - 8.57	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k) (822)

Vehicle Trip Ends vs: Employees

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Employees: 21

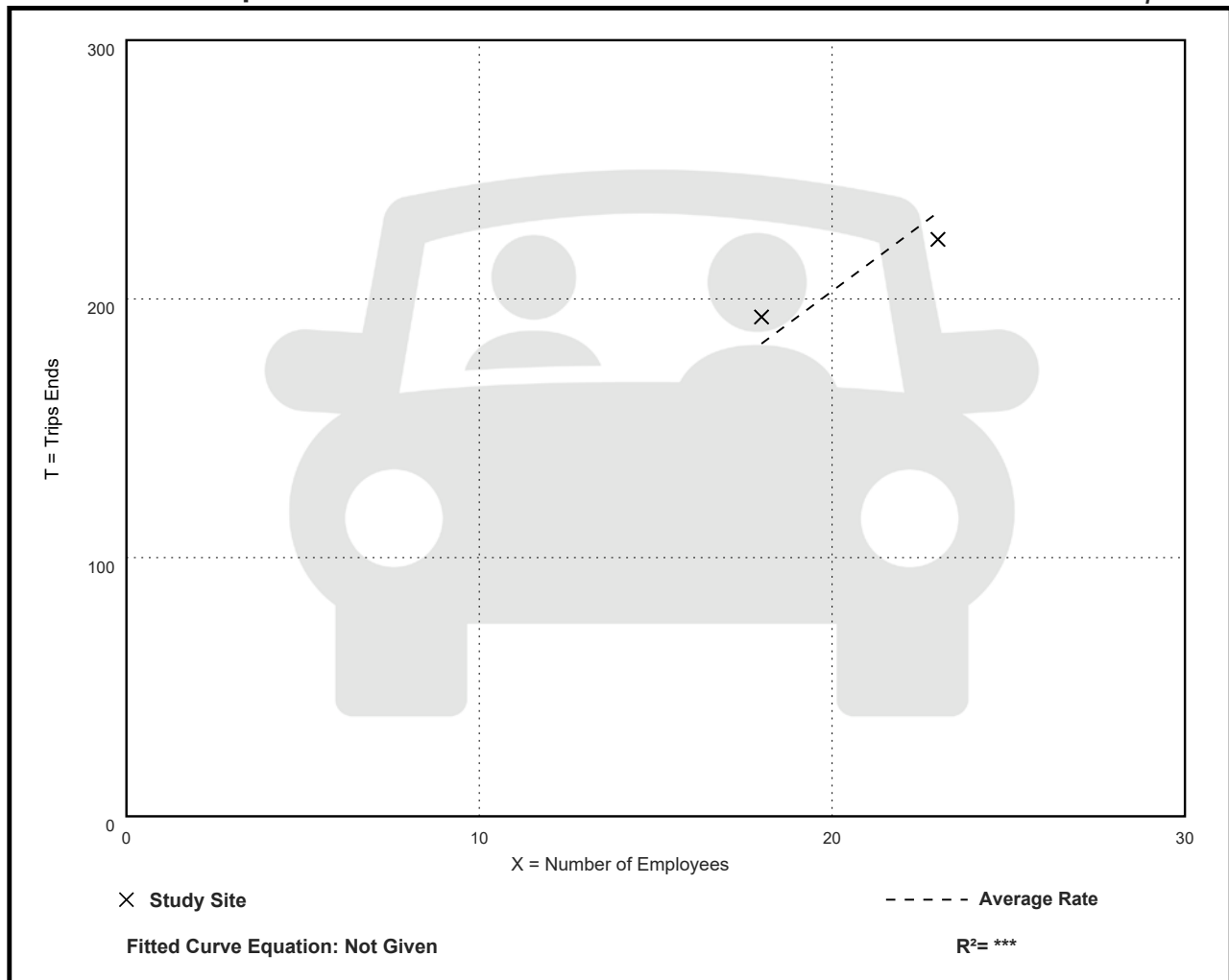
Directional Distribution: 56% entering, 44% exiting

Vehicle Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
10.15	9.70 - 10.72	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k) (822)

Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. 1000 Sq. Ft. GLA: 20

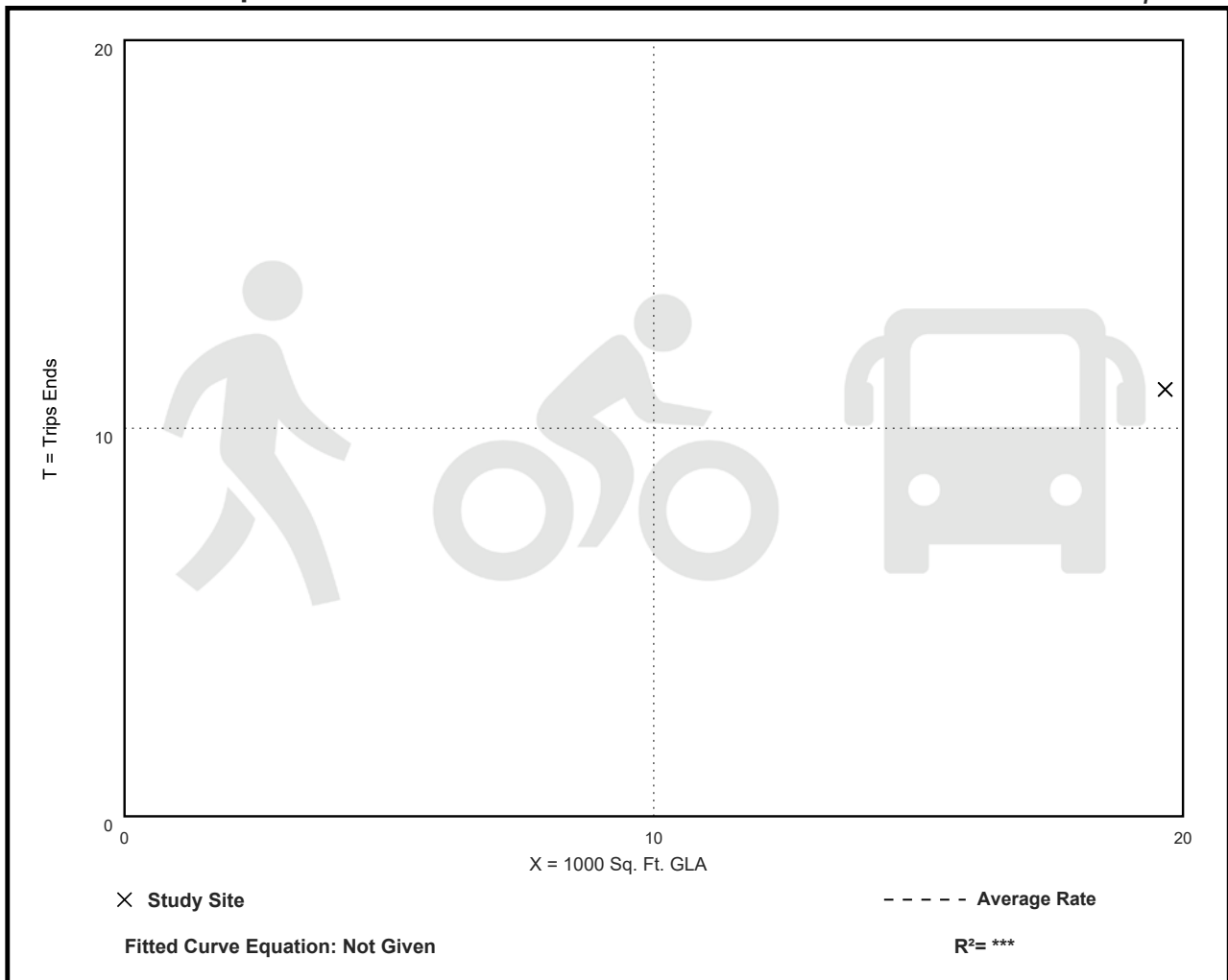
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.56	0.56 - 0.56	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k) (822)

Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 5

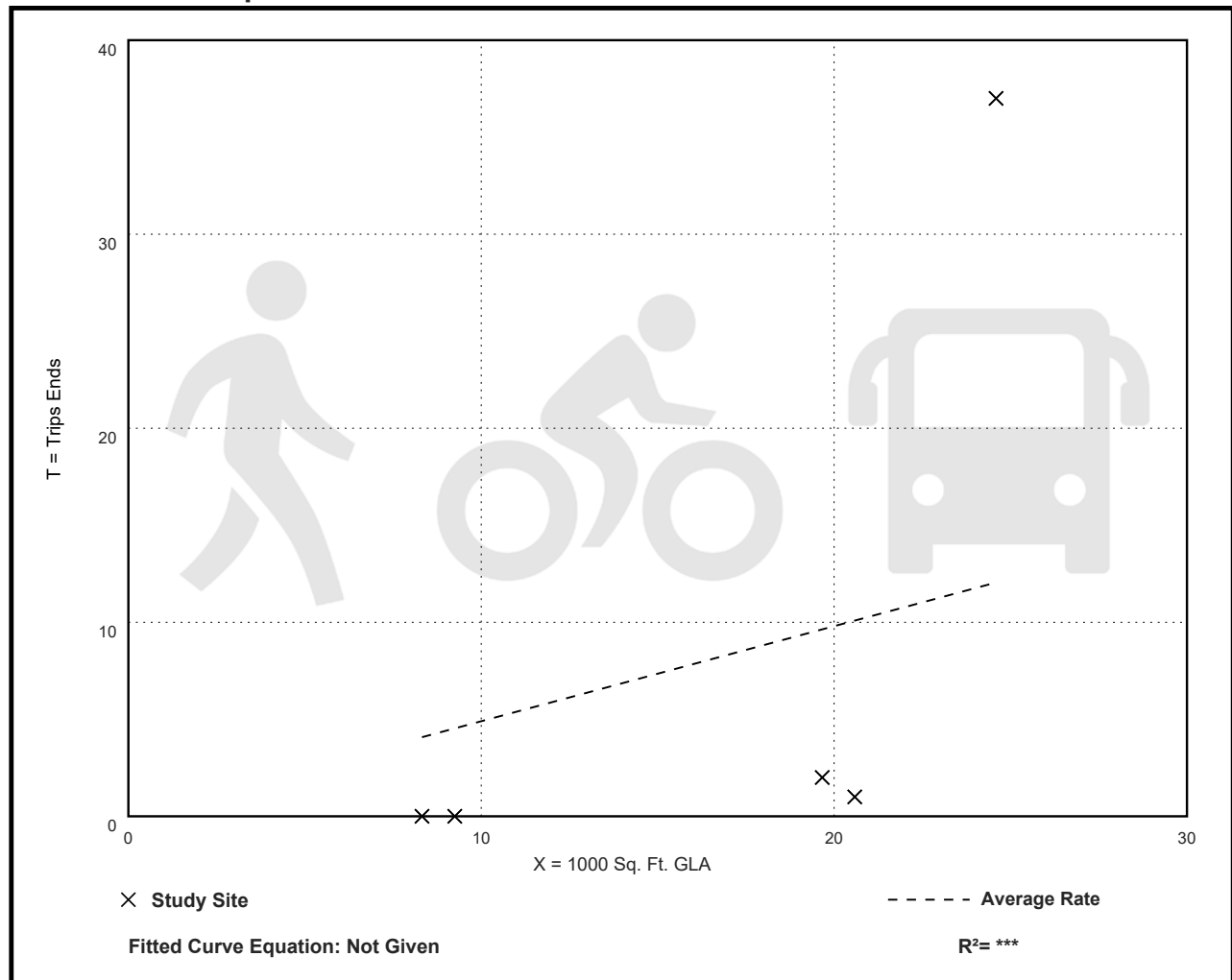
Avg. 1000 Sq. Ft. GLA: 16

Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
0.49	0.00 - 1.50	0.74

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GLA

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 5

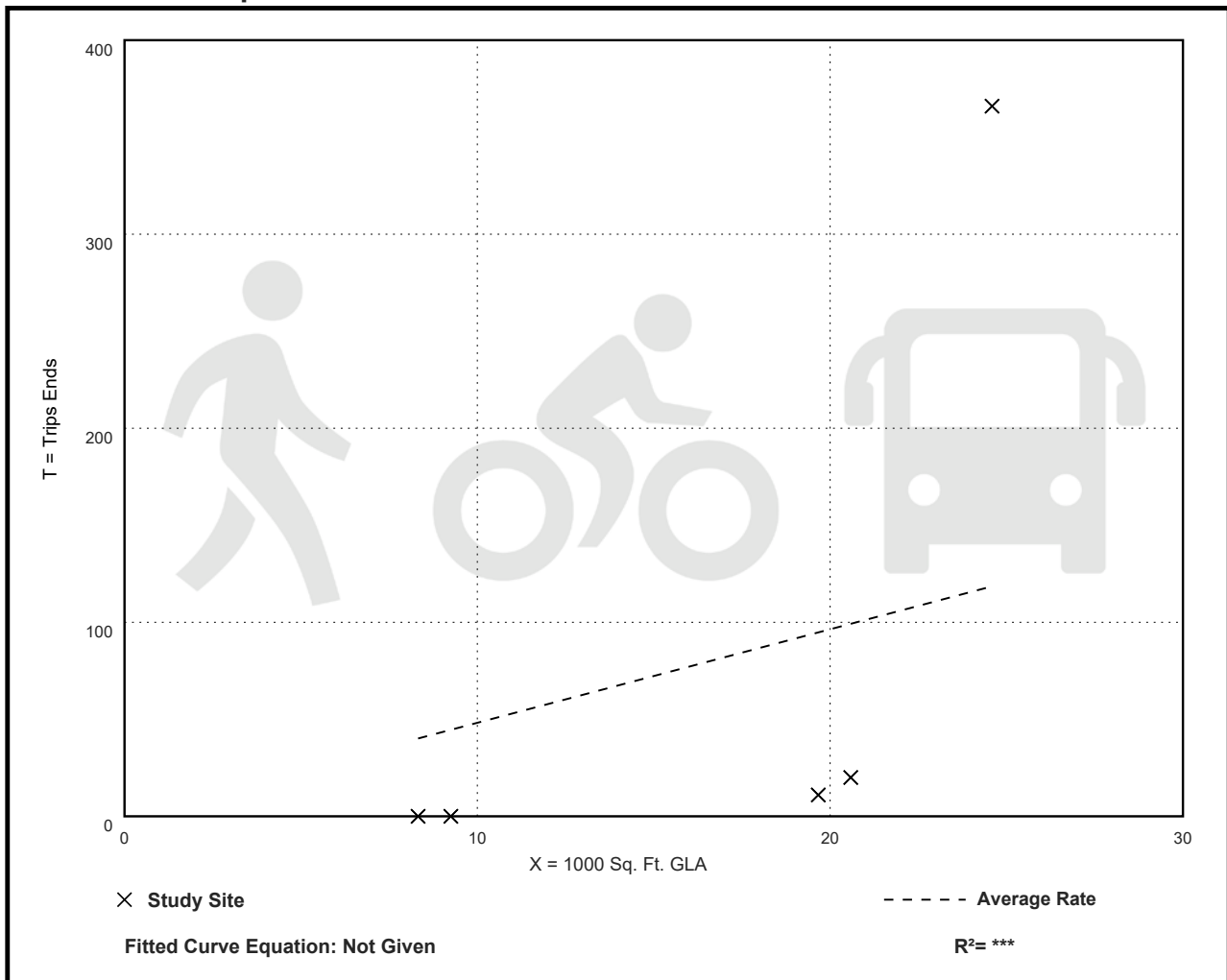
Avg. 1000 Sq. Ft. GLA: 16

Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GLA

Average Rate	Range of Rates	Standard Deviation
4.82	0.00 - 14.88	7.35

Data Plot and Equation



Strip Retail Plaza (<40k) (822)

Walk+Bike+Transit Trip Ends vs: Employees

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Employees: 21

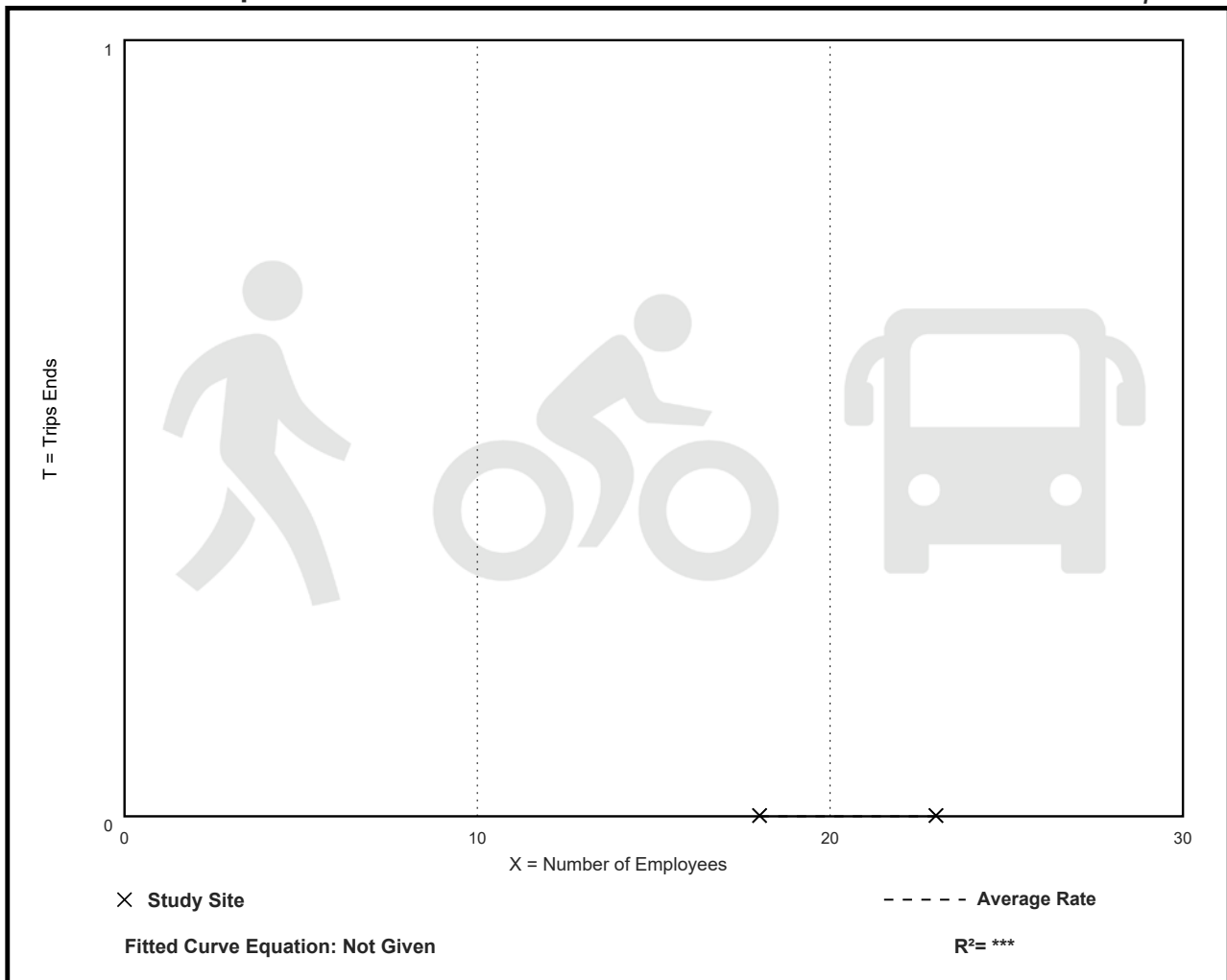
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.00	0.00 - 0.00	***

Data Plot and Equation

Caution – Small Sample Size



Strip Retail Plaza (<40k) (822)

Walk+Bike+Transit Trip Ends vs: Employees

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 2

Avg. Num. of Employees: 21

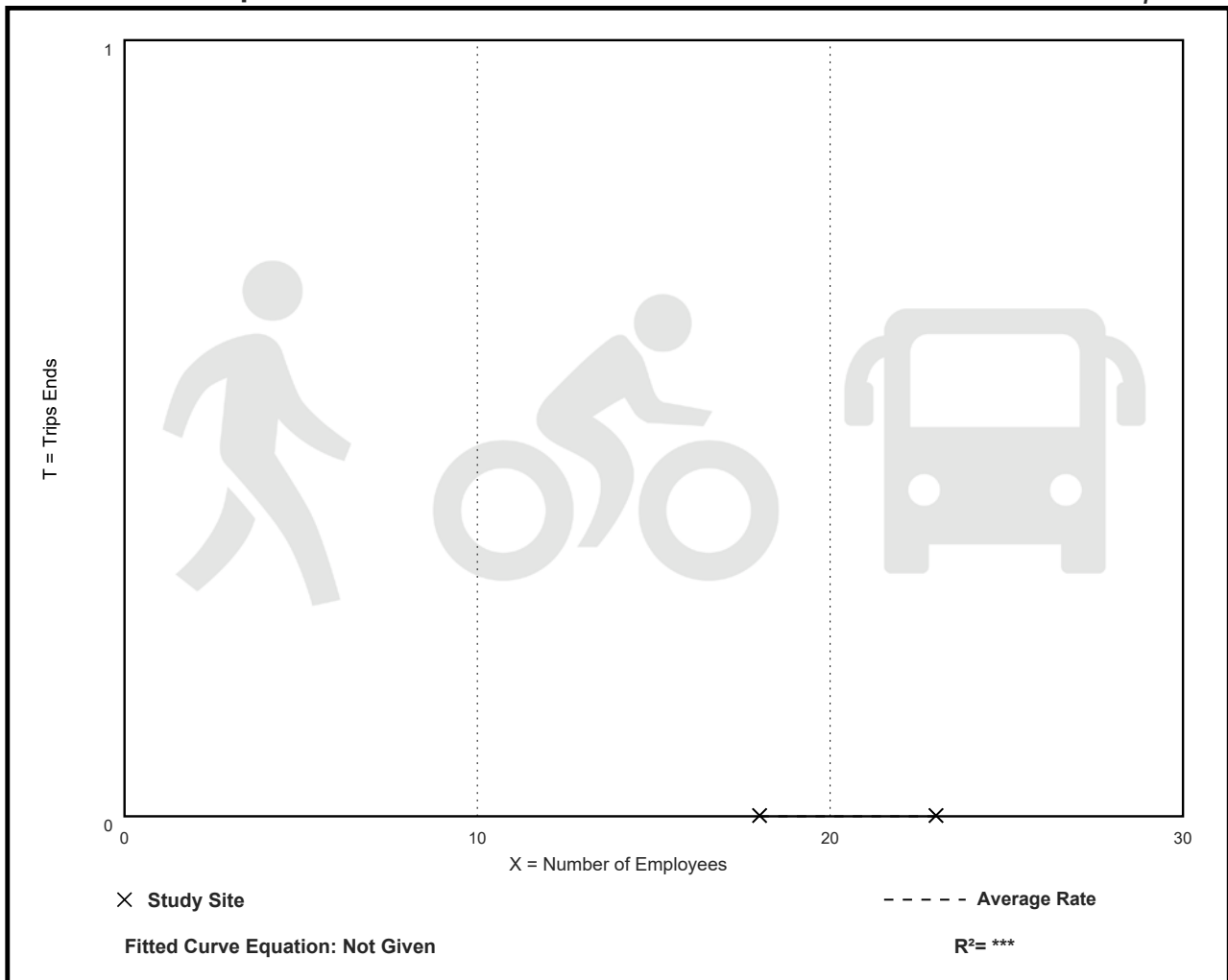
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per Employee

Average Rate	Range of Rates	Standard Deviation
0.00	0.00 - 0.00	***

Data Plot and Equation

Caution – Small Sample Size



Land Use: 937

Coffee/Donut Shop with Drive-Through Window

Description

This land use includes any coffee and donut restaurant that has a drive-through window as well as a walk-in entrance area at which a patron can purchase and consume items. The restaurant sells freshly brewed coffee (along with coffee-related accessories) and a variety of food/drink products such as donuts, bagels, breads, muffins, cakes, sandwiches, wraps, salads, and other hot and cold beverages. The restaurant marketing and sales may emphasize coffee beverages over food (or vice versa).

A coffee/donut shop typically holds long store hours (more than 15 hours) with an early morning opening. Limited indoor seating is generally provided for patrons, but table service is not provided.

Coffee/donut shop without drive-through window (Land Use 936) and coffee/donut shop with drive-through window and no indoor seating (Land Use 938) are related uses.

Additional Data

The sites were surveyed in the 1990s, the 2000s, and the 2010s in California, Colorado, Connecticut, Illinois, Massachusetts, Minnesota, Nevada, New Hampshire, New Jersey, New York, Ontario (CAN), Pennsylvania, Quebec (CAN), Tennessee, Vermont, Washington, and Wisconsin.

Specialized Land Use Data

One study was conducted during the pandemic in 2020. Twelve sites were counted in Illinois and Missouri during the AM and PM adjacent street peak hours. The data have not been incorporated within the overall ITE trip generation database and are not reflected in the data plots for this land use. Consideration for their inclusion will be given for the 12th Edition of *Trip Generation Manual* after additional post-pandemic data are collected. Overall, the pandemic counts yielded an AM adjacent street peak weighted average rate of 84 vehicle trips per 1,000 square feet GFA, roughly equivalent to the pre-pandemic average. The PM adjacent street peak rate was 56 (roughly 40 percent higher than the pre-pandemic value). The higher PM peak rate for these coffee/donut shops conforms with anecdotal observations that with the temporary or permanent closures of many restaurants during the pandemic, the drive-through restaurants that were open did a brisk business even during their off-peak periods.

Source Numbers

594, 599, 615, 617, 618, 621, 622, 635, 639, 712, 714, 725, 726, 728, 853, 854, 892, 903, 928, 959, 979, 982, 1004, 1042, 1044

Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 6

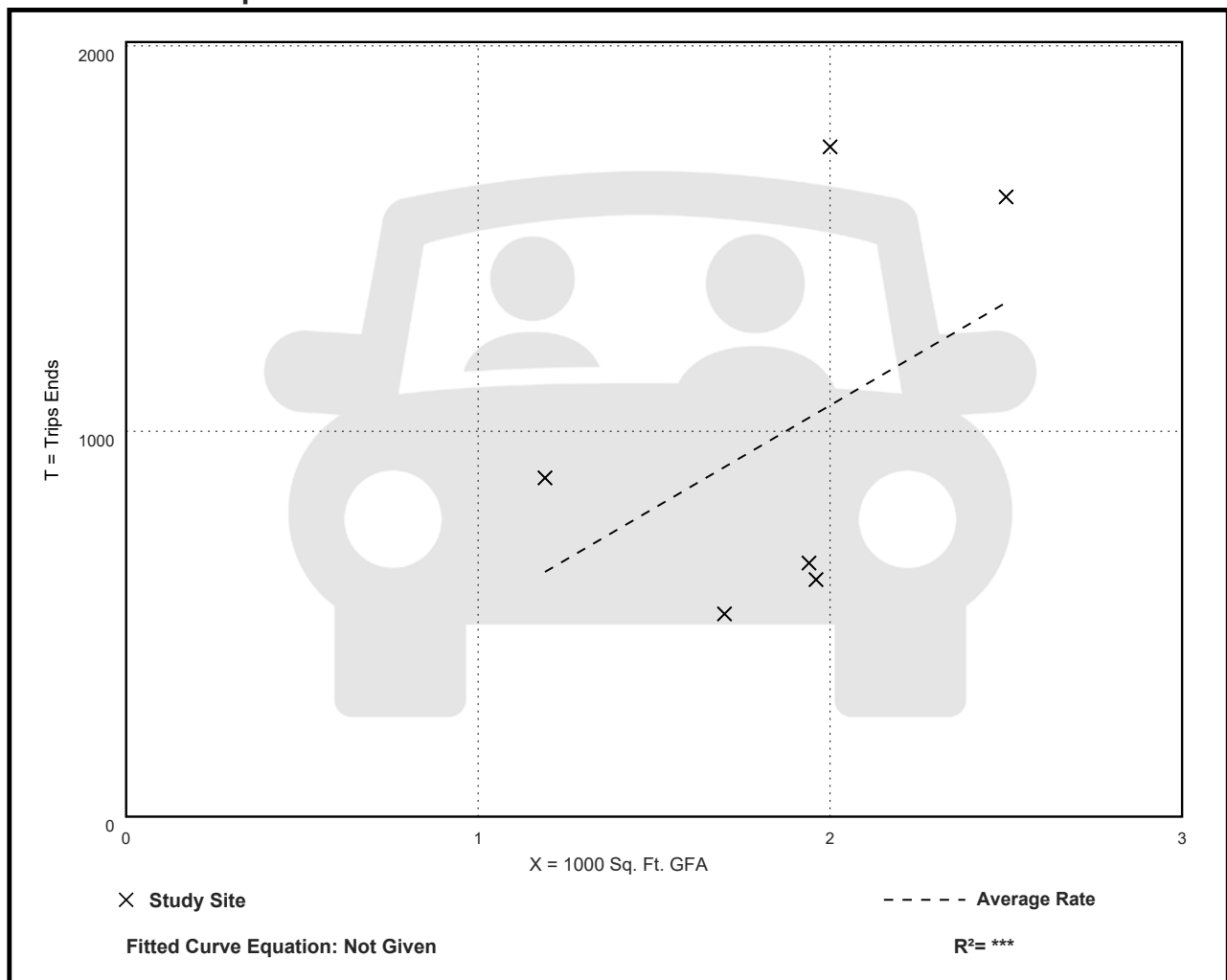
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
533.57	309.41 - 869.00	243.65

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 78

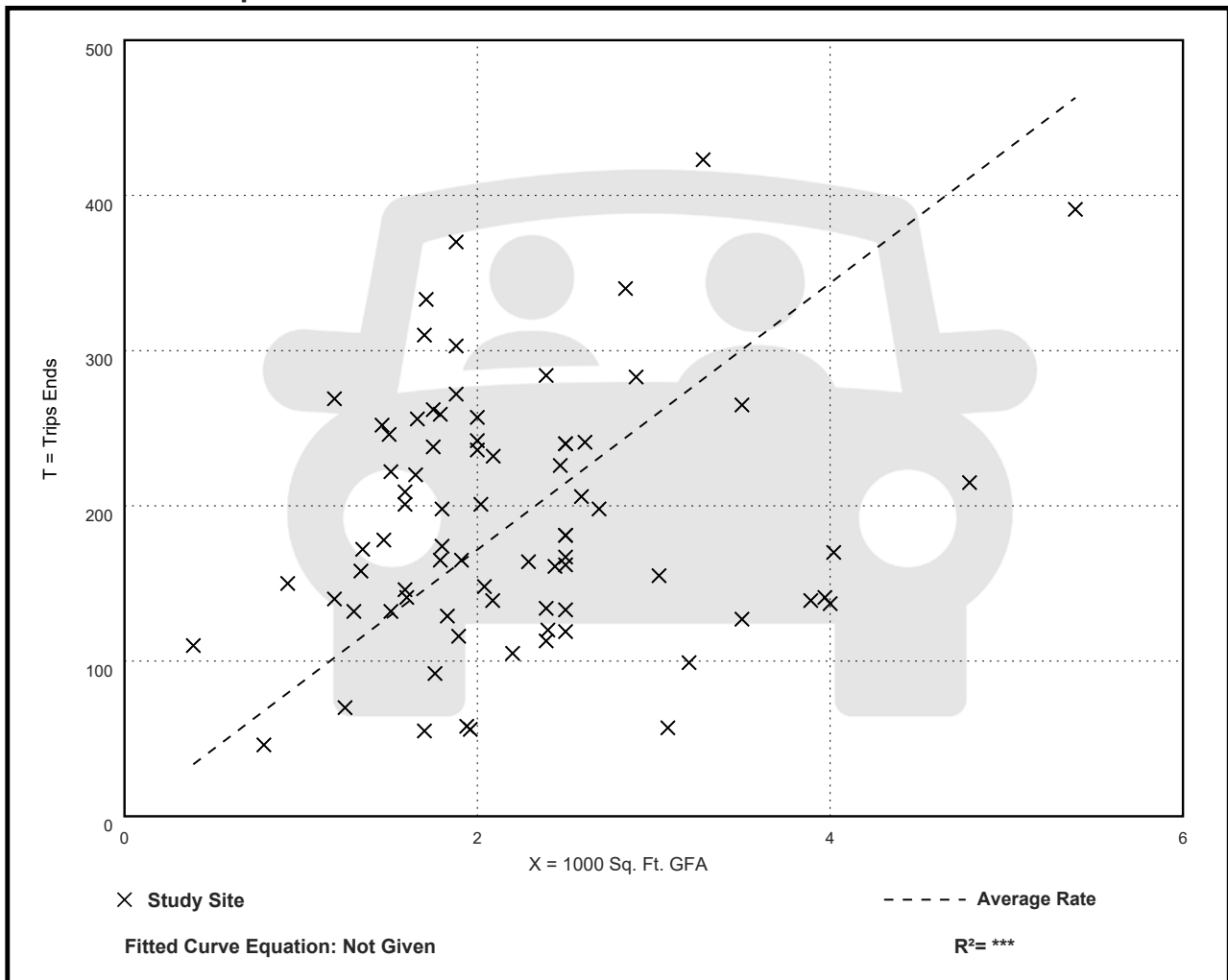
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
85.88	18.51 - 282.05	44.92

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 36

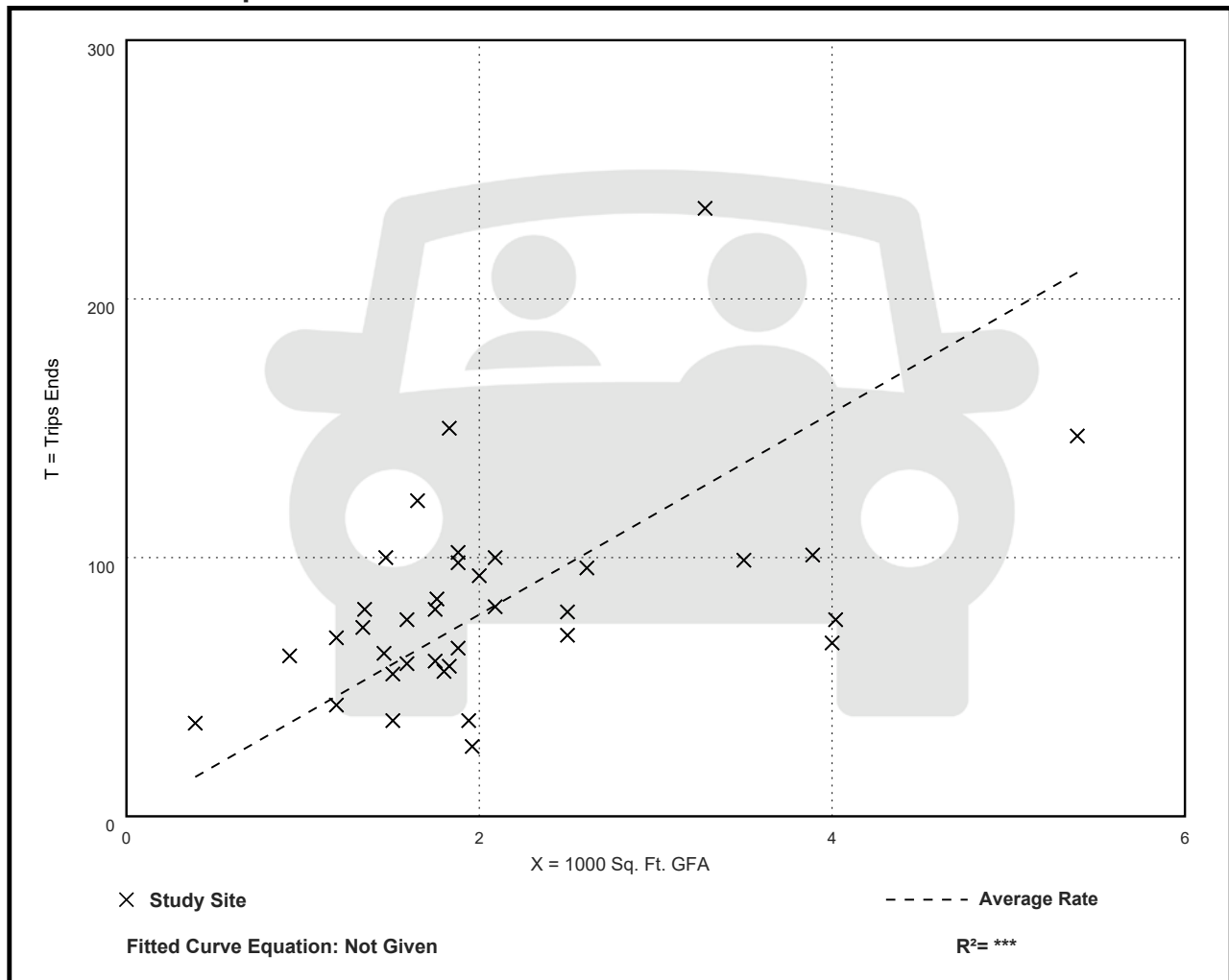
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
38.99	13.78 - 92.31	17.79

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 62

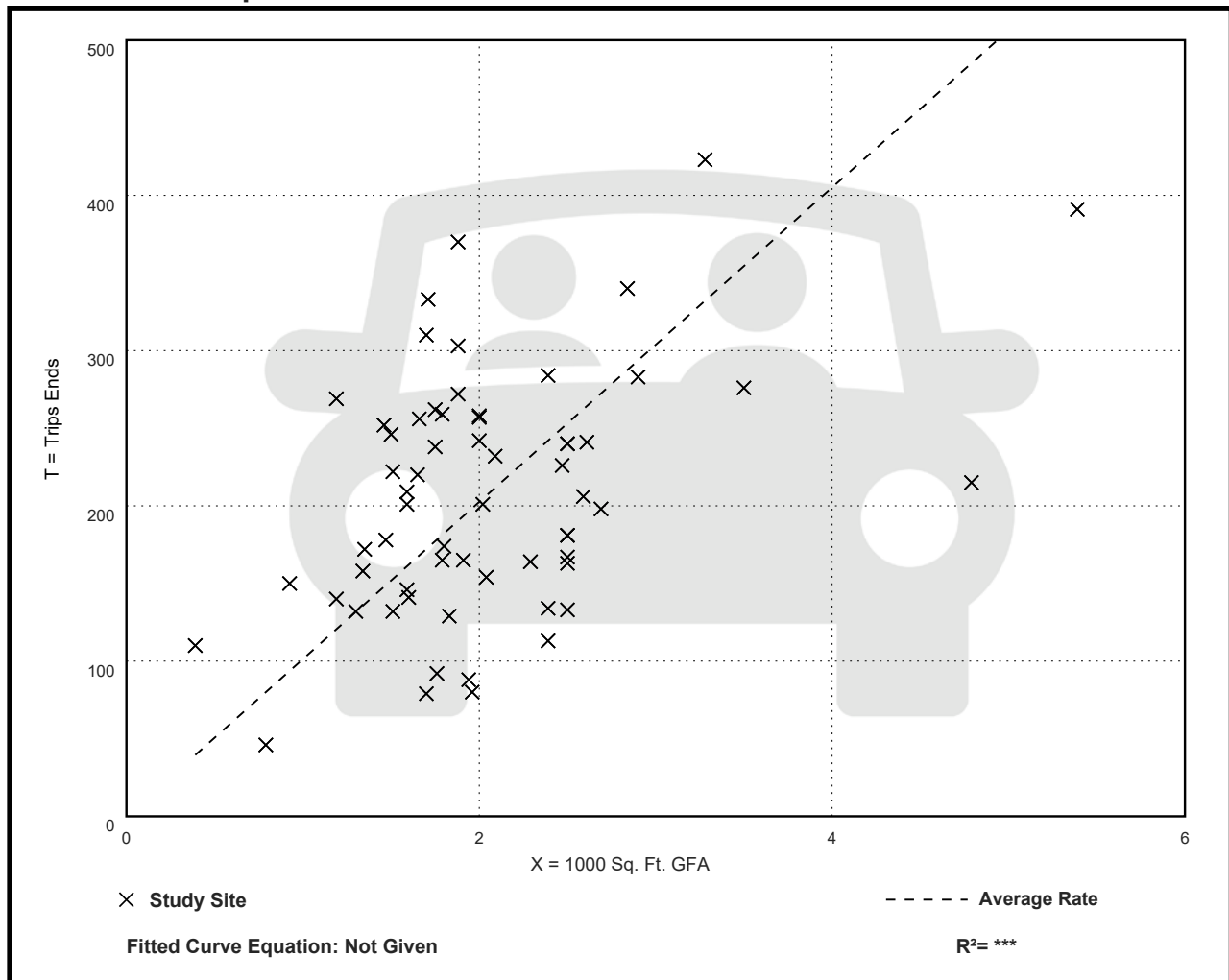
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
101.27	40.82 - 282.05	41.74

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 34

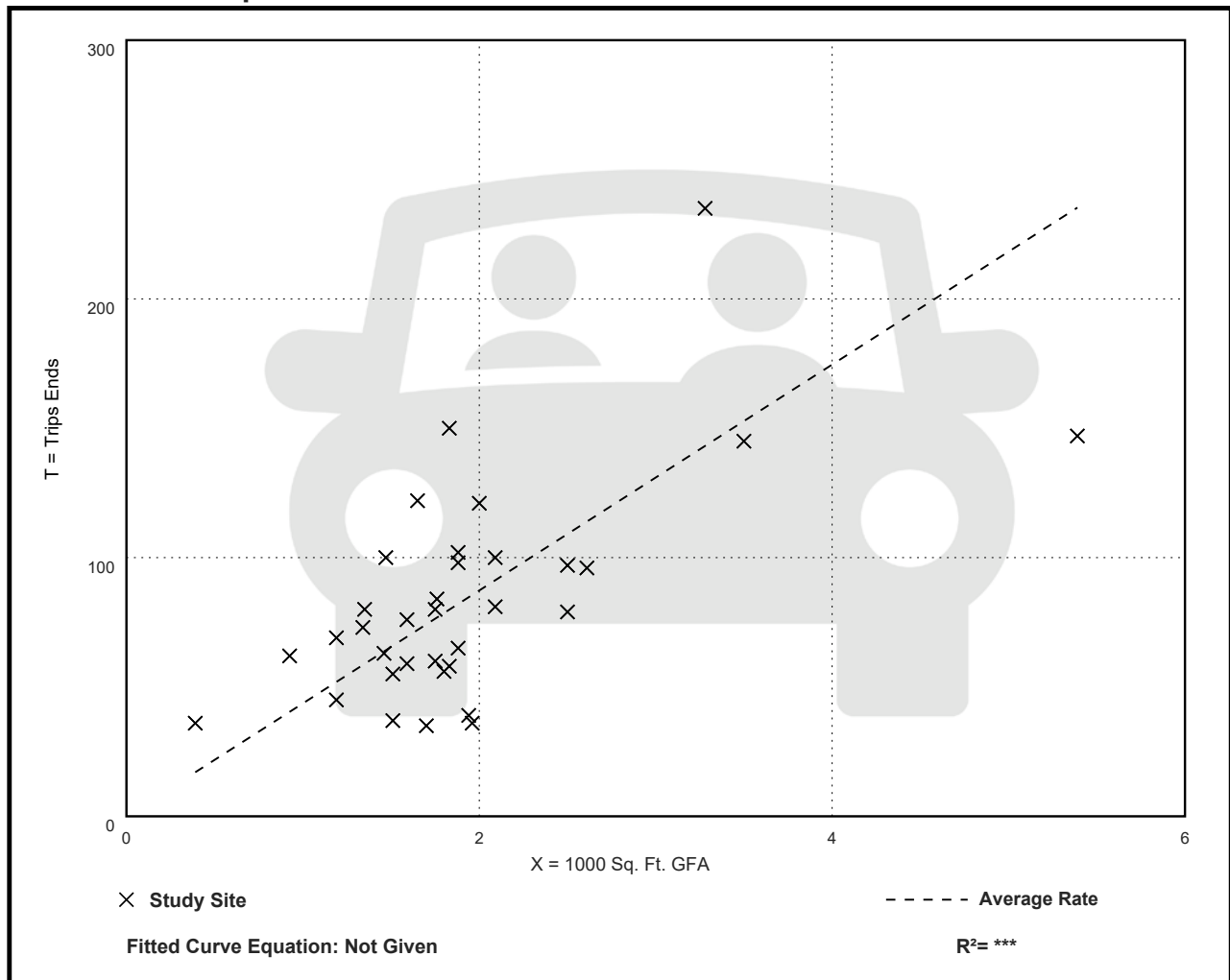
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
43.65	18.37 - 92.31	16.74

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: 1000 Sq. Ft. GFA

On a: Saturday, Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 9

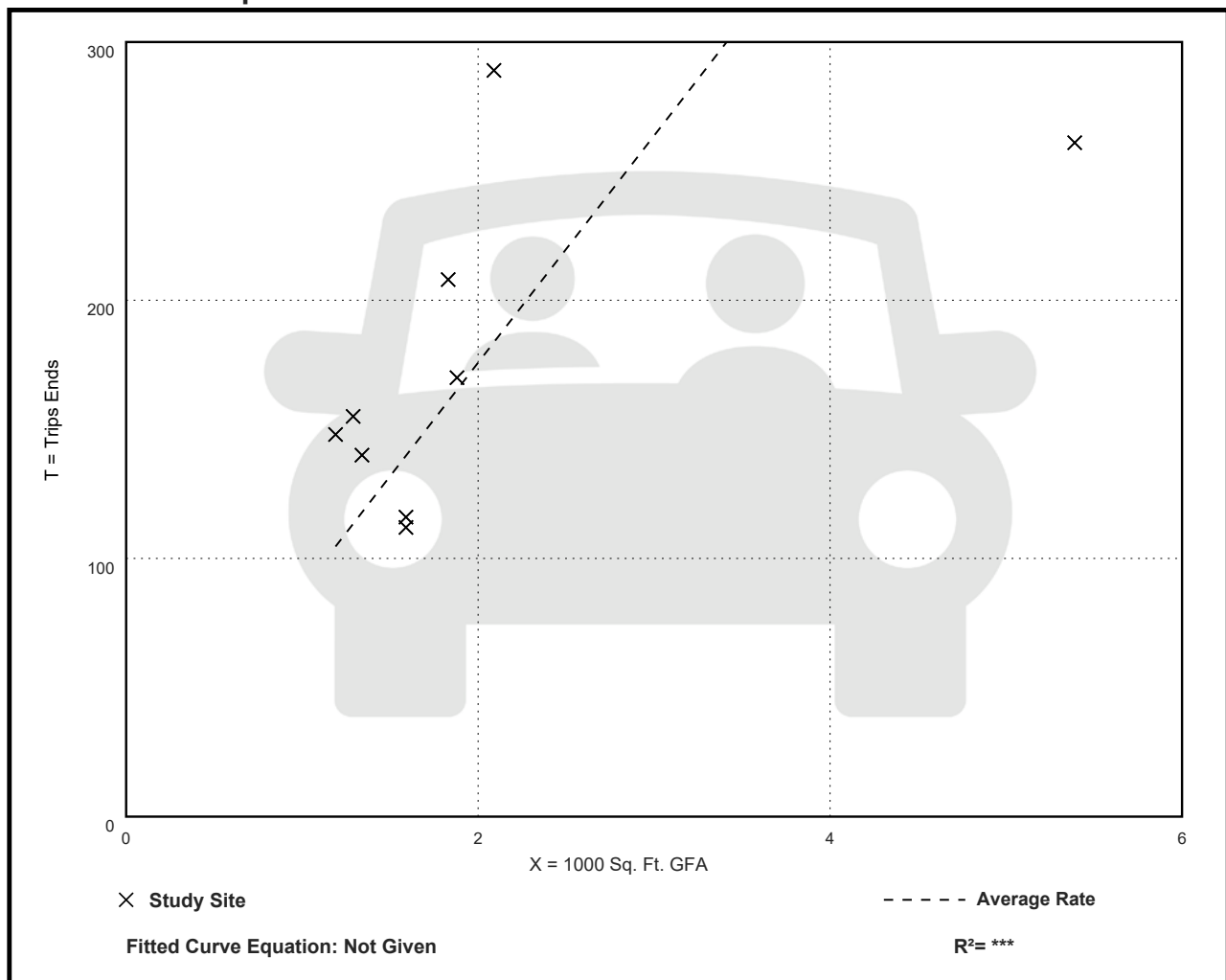
Avg. 1000 Sq. Ft. GFA: 2

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
87.91	48.42 - 138.28	34.34

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: Seats

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 4

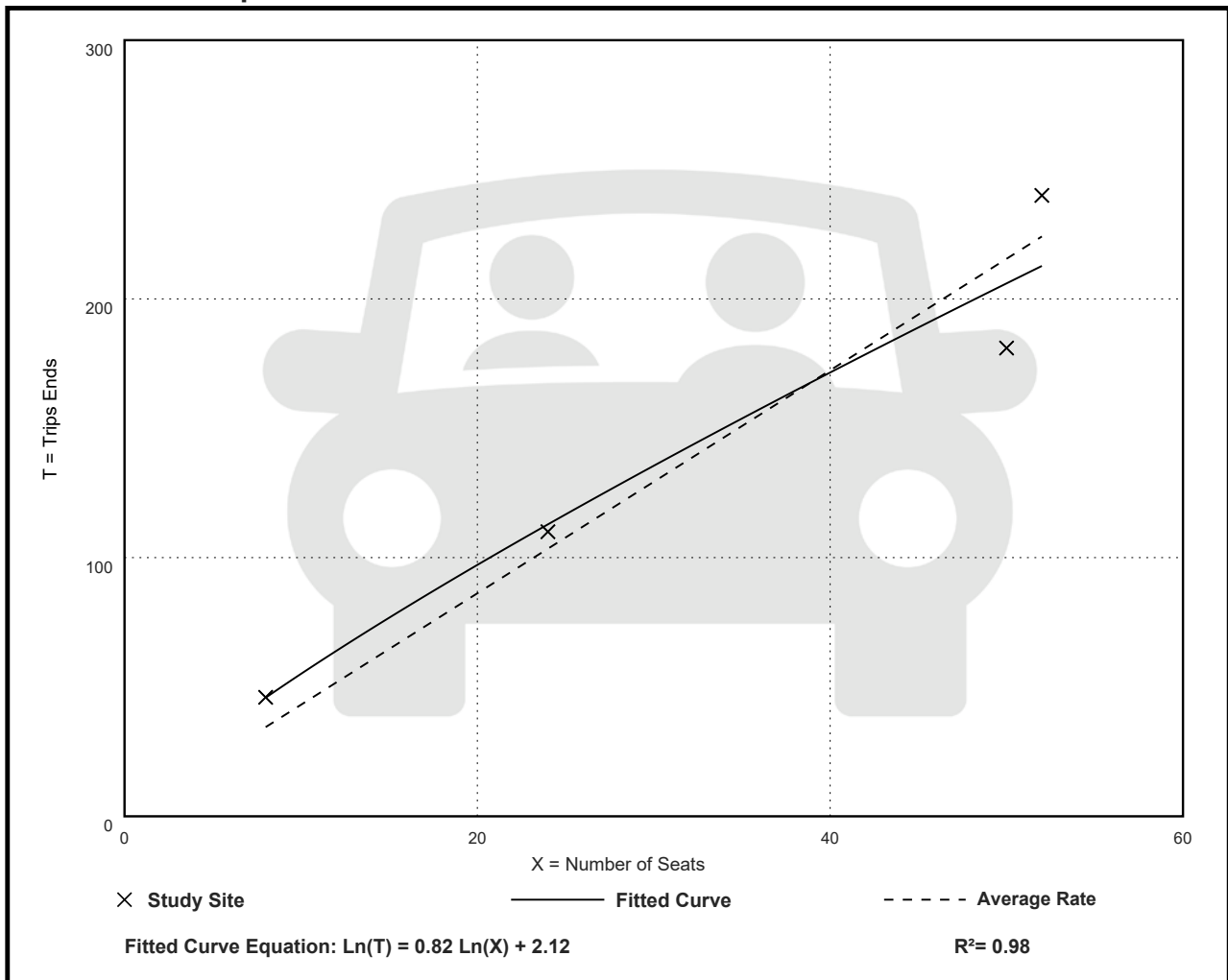
Avg. Num. of Seats: 34

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
4.31	3.62 - 5.75	0.68

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: Seats

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Seats: 24

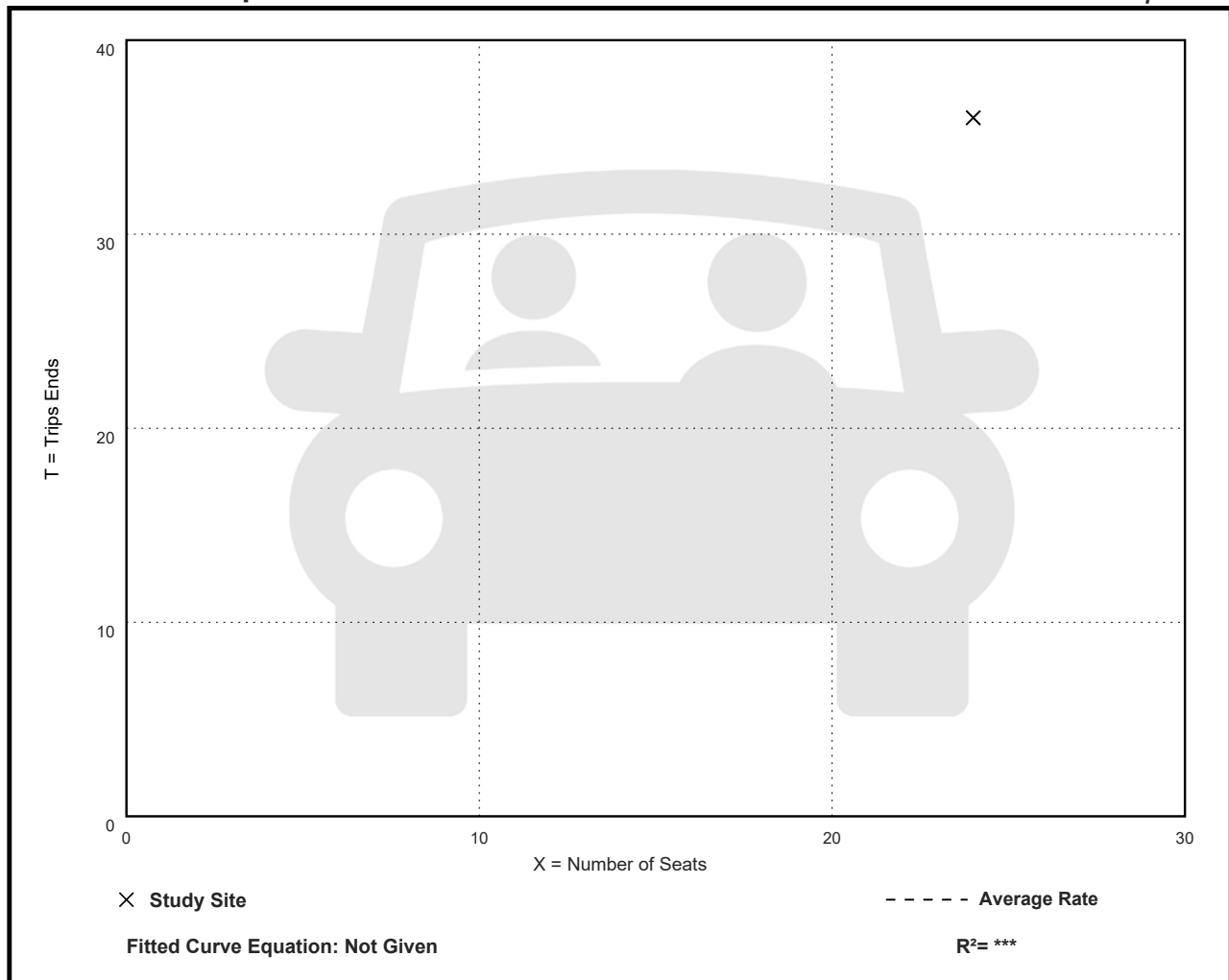
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
1.50	1.50 - 1.50	***

Data Plot and Equation

Caution – Small Sample Size



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: Seats

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 4

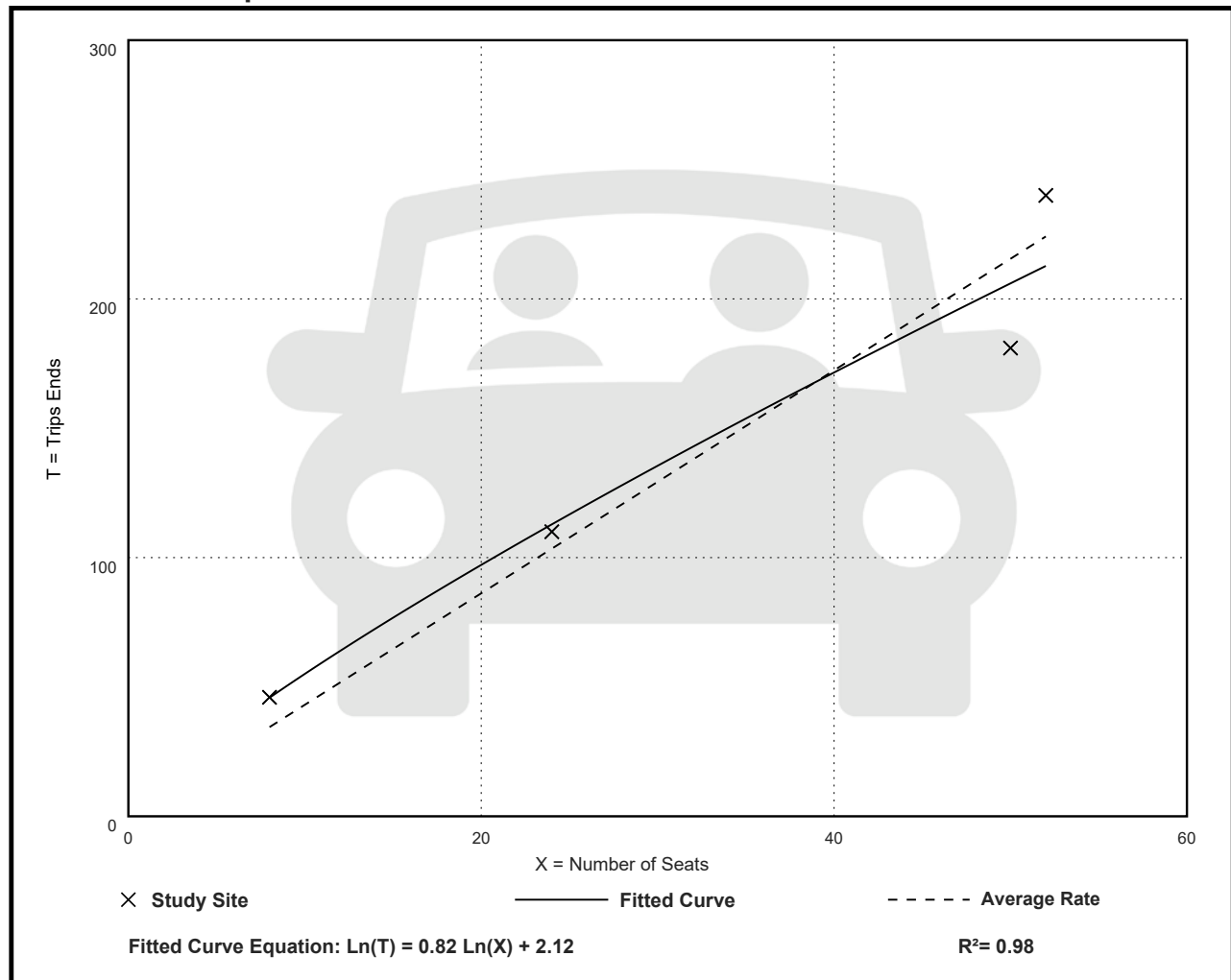
Avg. Num. of Seats: 34

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
4.31	3.62 - 5.75	0.68

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: Seats

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. Num. of Seats: 24

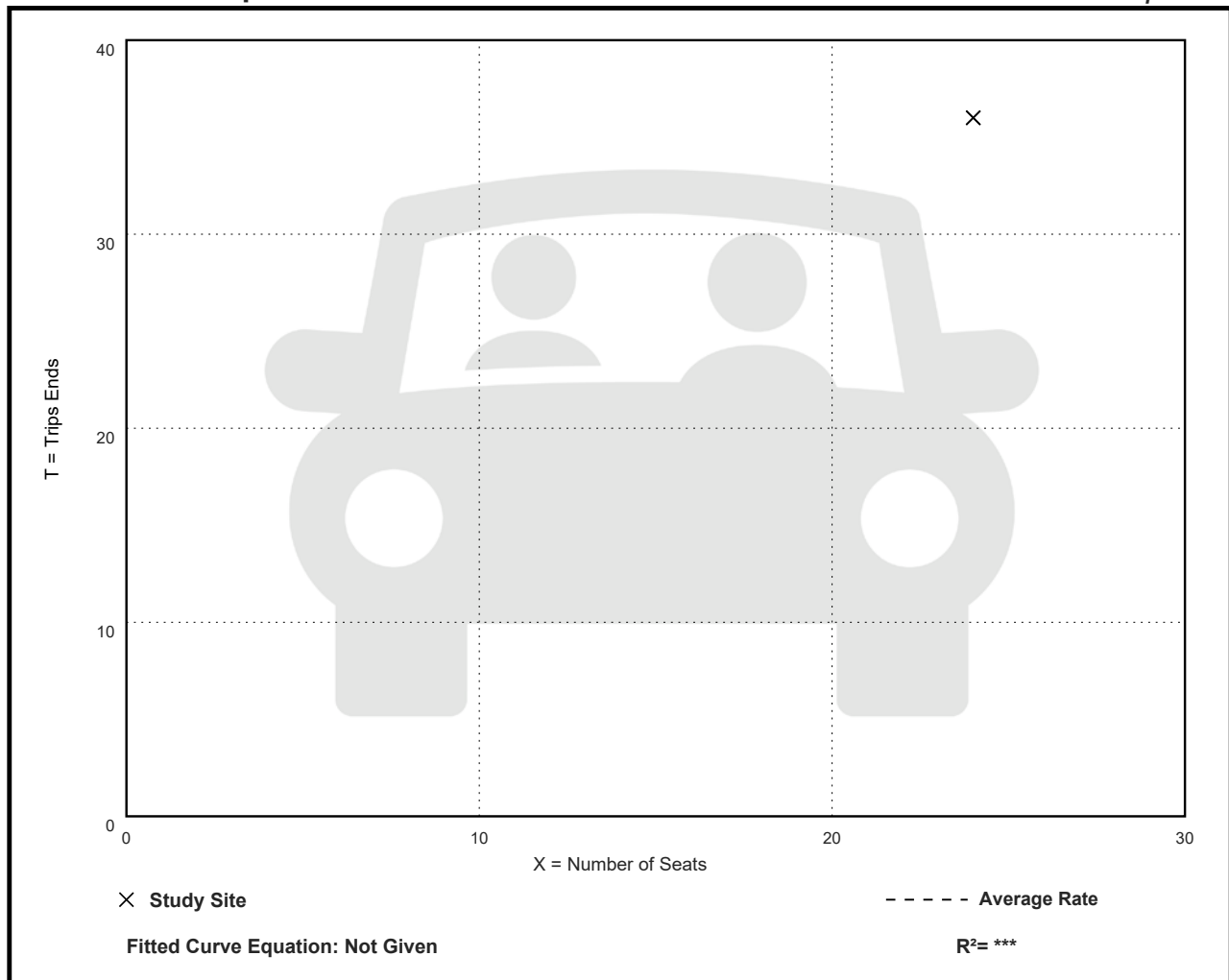
Directional Distribution: 45% entering, 55% exiting

Vehicle Trip Generation per Seat

Average Rate	Range of Rates	Standard Deviation
1.50	1.50 - 1.50	***

Data Plot and Equation

Caution – Small Sample Size



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: AM Peak Hour Traffic on Adj. St.

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 10

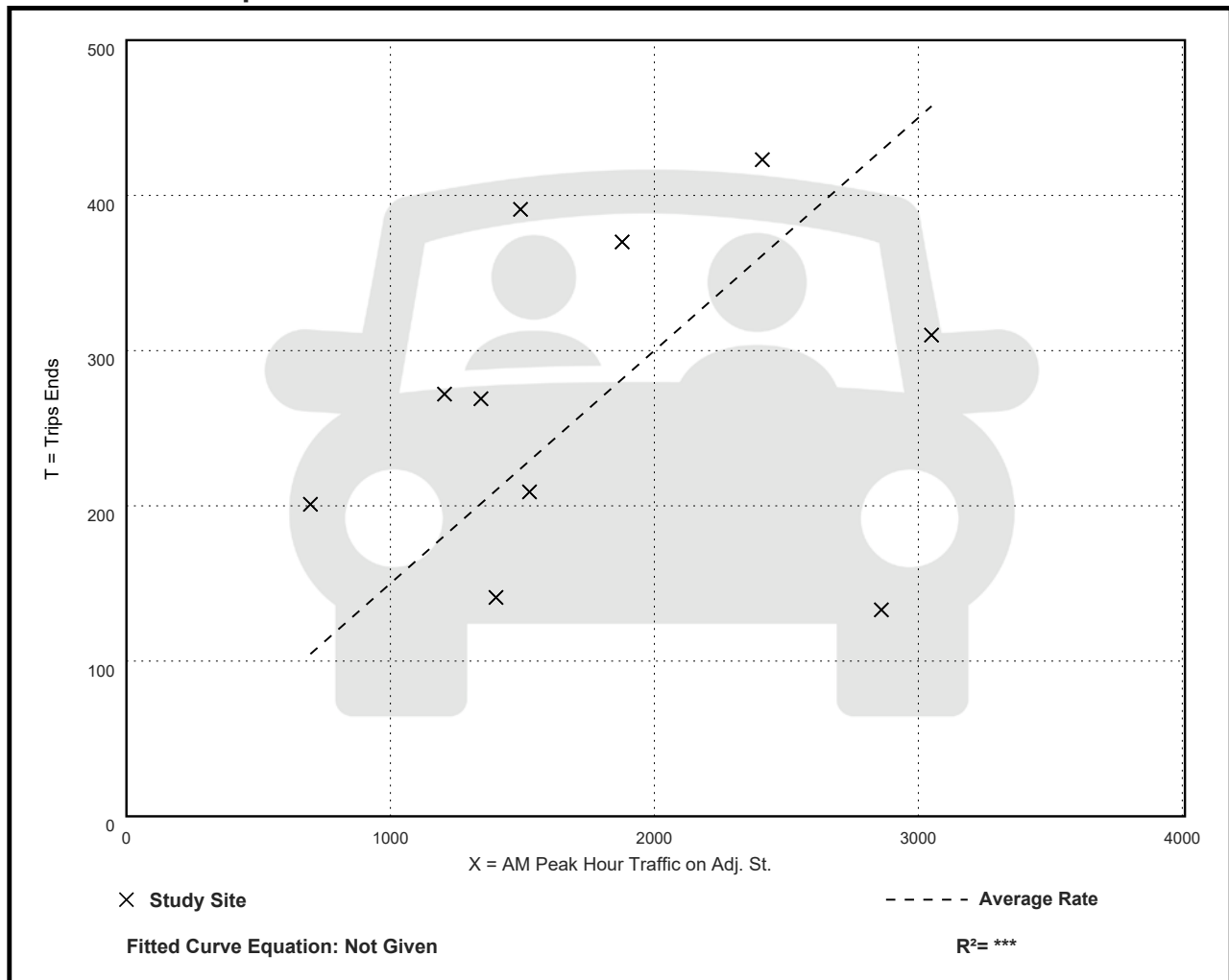
Avg. AM Peak Hour Traffic on Adj. St.: 1786

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per AM Peak Hour Traffic on Adj. St.

Average Rate	Range of Rates	Standard Deviation
0.15	0.05 - 0.29	0.07

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: AM Peak Hour Traffic on Adj. St.

On a: Weekday,

AM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 9

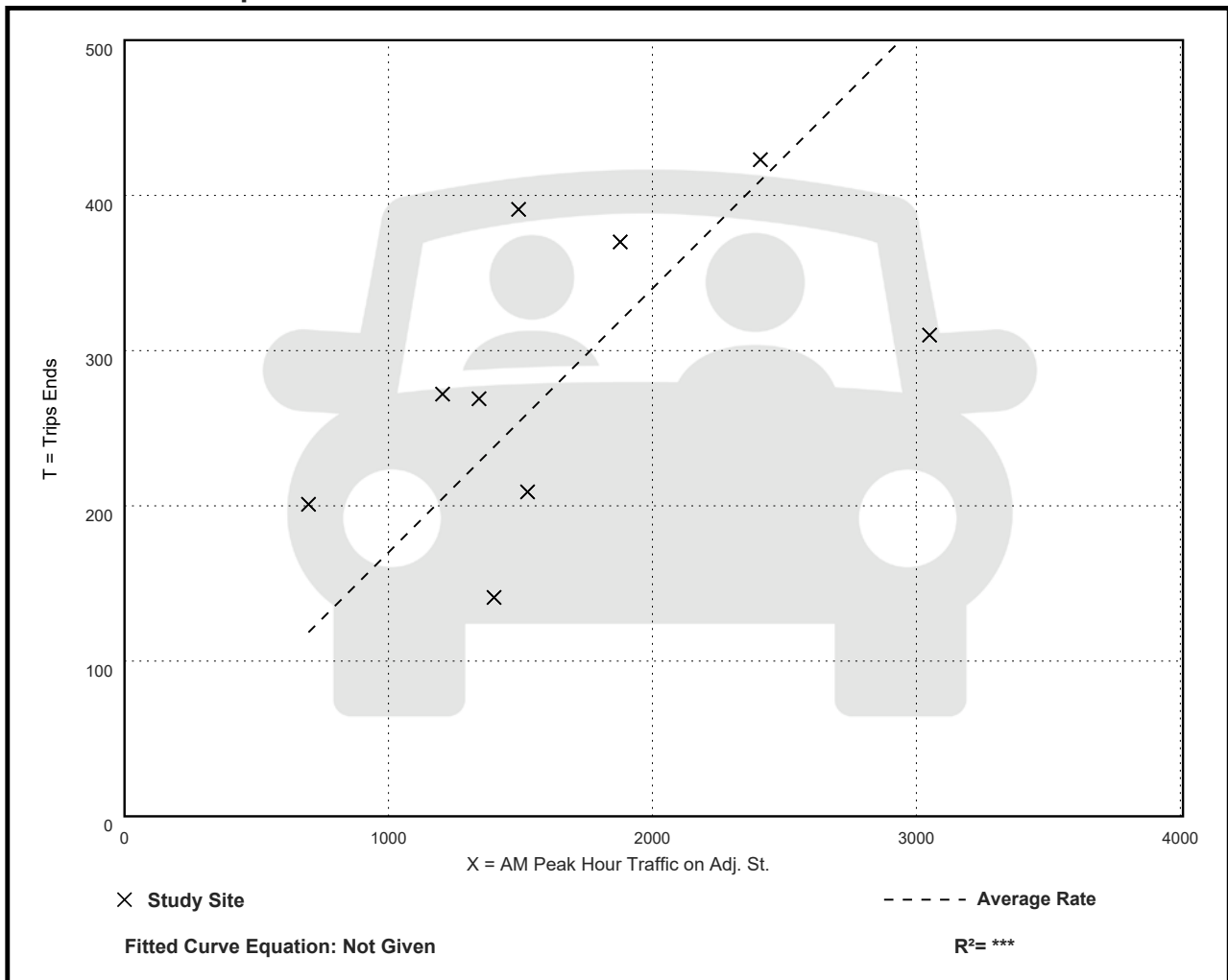
Avg. AM Peak Hour Traffic on Adj. St.: 1667

Directional Distribution: 52% entering, 48% exiting

Vehicle Trip Generation per AM Peak Hour Traffic on Adj. St.

Average Rate	Range of Rates	Standard Deviation
0.17	0.10 - 0.29	0.06

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: PM Peak Hour Traffic on Adj. St.

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 8

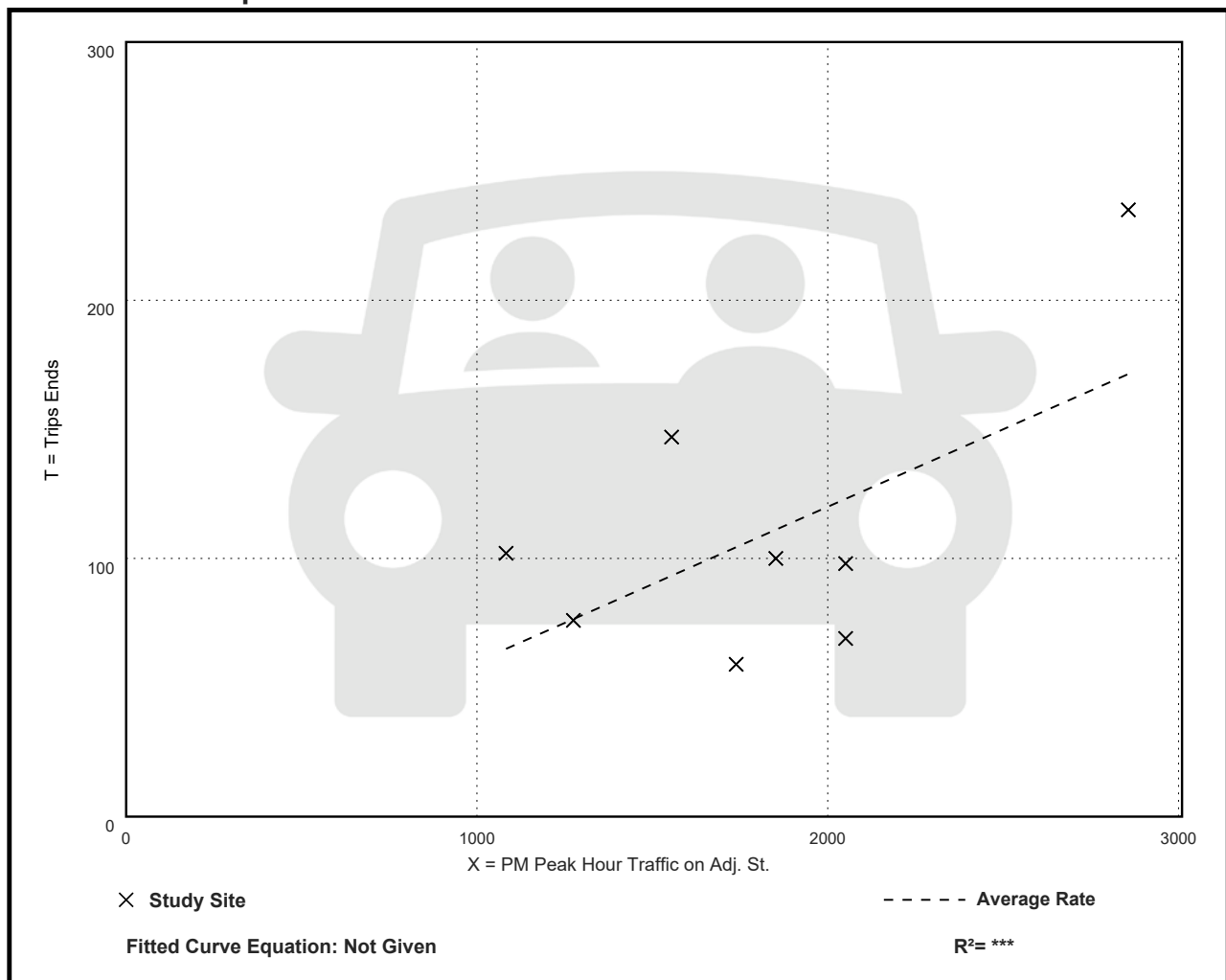
Avg. PM Peak Hour Traffic on Adj. St.: 1808

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per PM Peak Hour Traffic on Adj. St.

Average Rate	Range of Rates	Standard Deviation
0.06	0.03 - 0.09	0.02

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Vehicle Trip Ends vs: PM Peak Hour Traffic on Adj. St.

On a: Weekday,

PM Peak Hour of Generator

Setting/Location: General Urban/Suburban

Number of Studies: 8

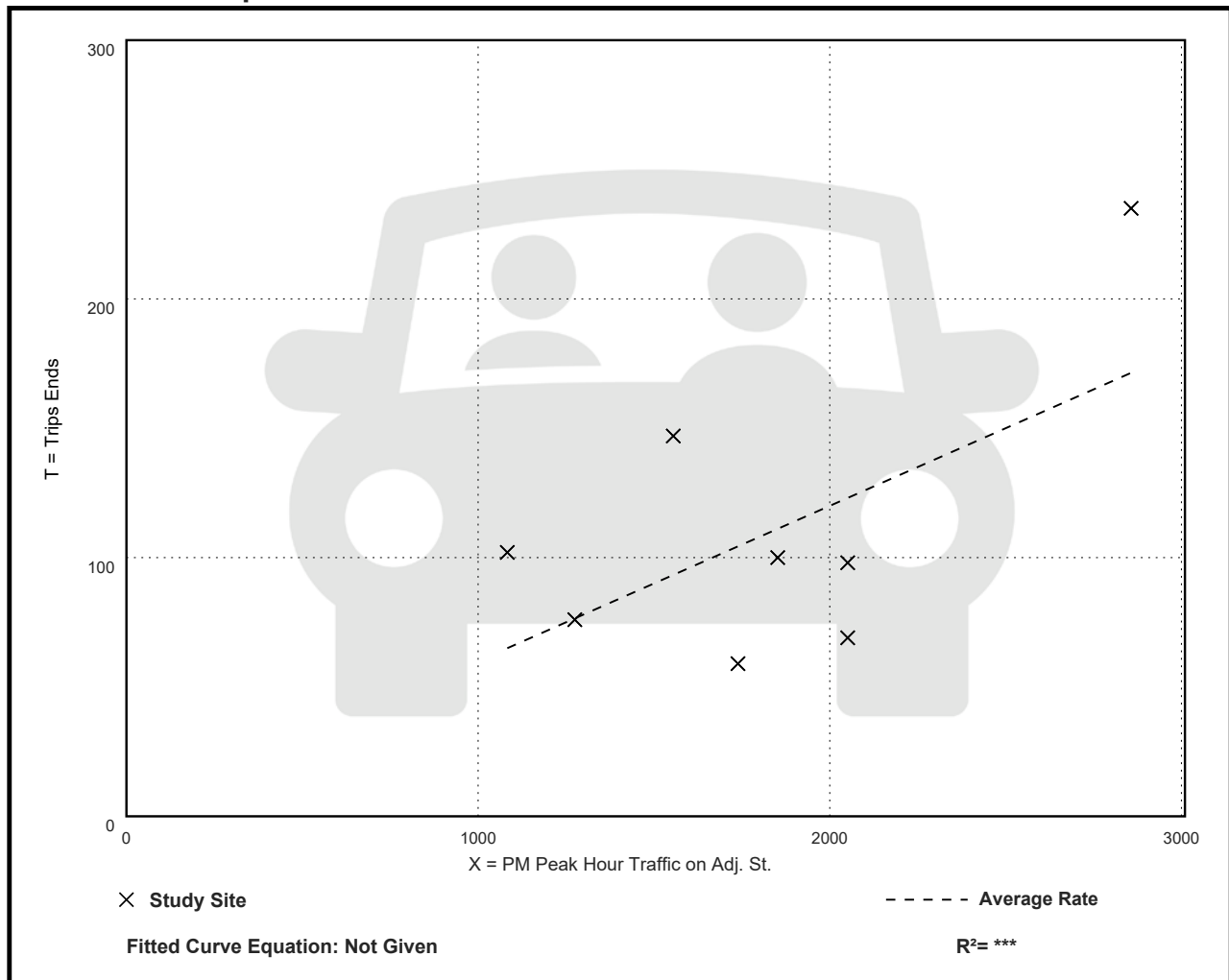
Avg. PM Peak Hour Traffic on Adj. St.: 1808

Directional Distribution: 51% entering, 49% exiting

Vehicle Trip Generation per PM Peak Hour Traffic on Adj. St.

Average Rate	Range of Rates	Standard Deviation
0.06	0.03 - 0.09	0.02

Data Plot and Equation



Coffee/Donut Shop with Drive-Through Window (937)

Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. 1000 Sq. Ft. GFA: 4

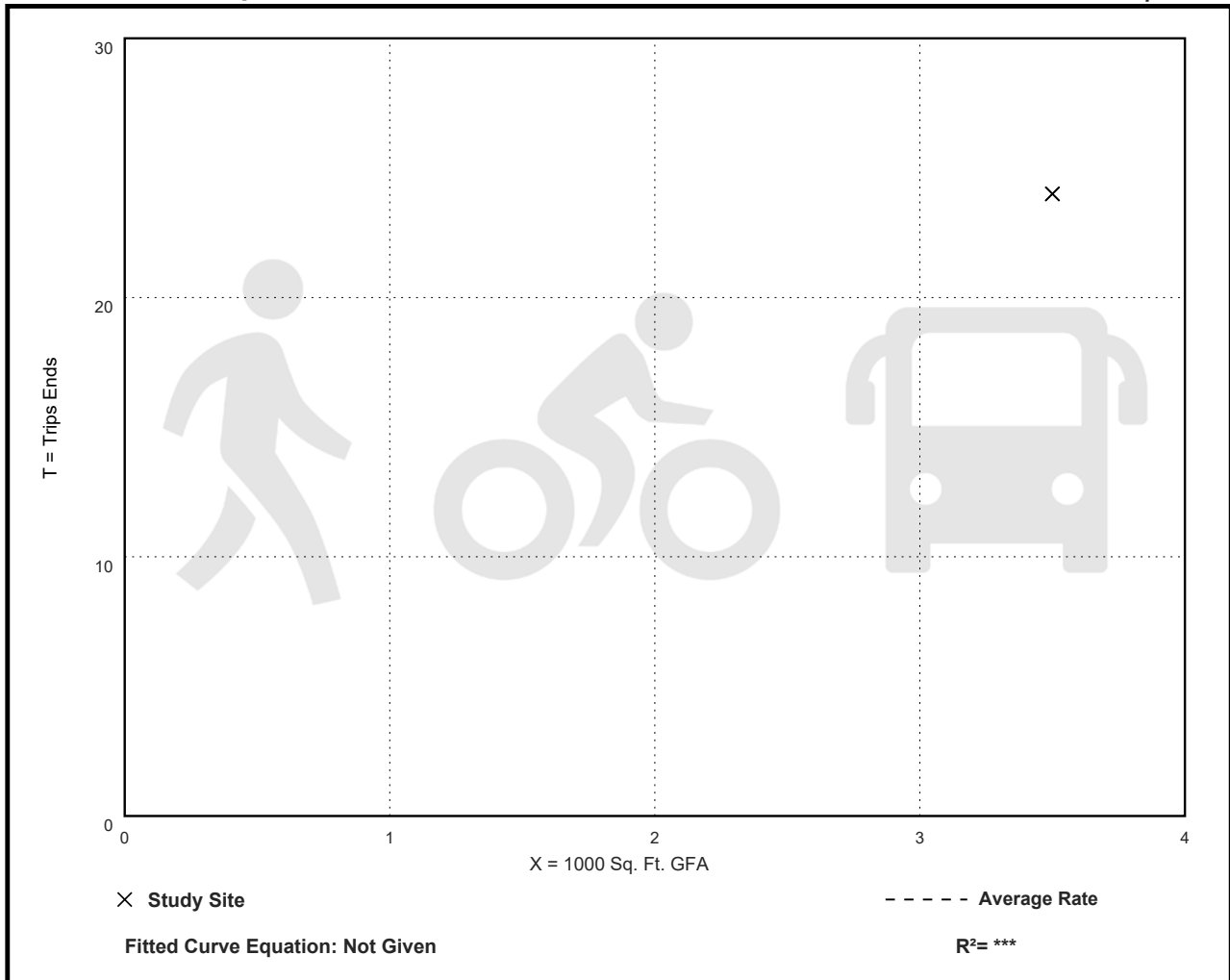
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
6.86	6.86 - 6.86	***

Data Plot and Equation

Caution – Small Sample Size



Coffee/Donut Shop with Drive-Through Window (937)

Walk+Bike+Transit Trip Ends vs: 1000 Sq. Ft. GFA

On a: Weekday,

Peak Hour of Adjacent Street Traffic,

One Hour Between 4 and 6 p.m.

Setting/Location: General Urban/Suburban

Number of Studies: 1

Avg. 1000 Sq. Ft. GFA: 4

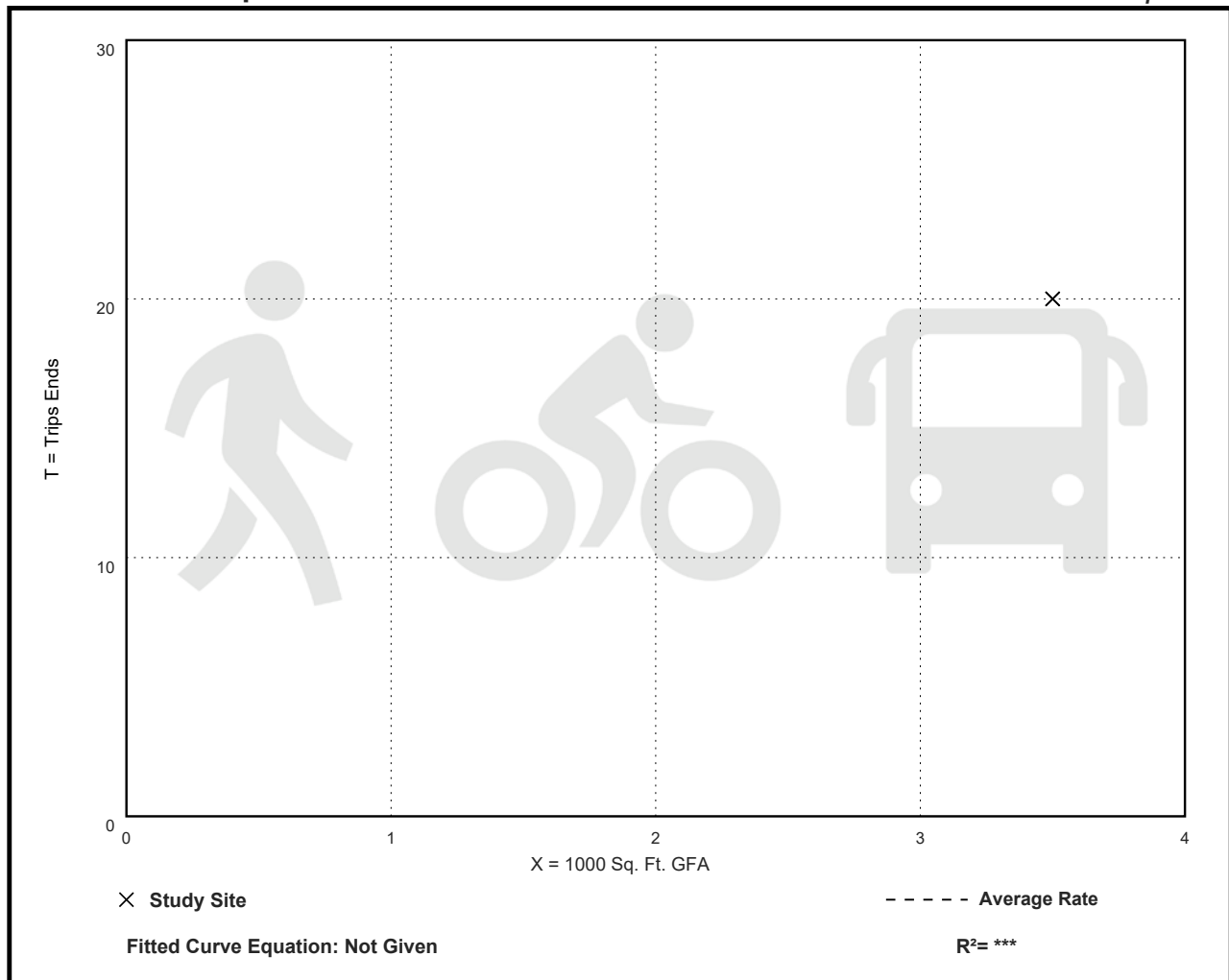
Directional Distribution: Not Available

Walk+Bike+Transit Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
5.71	5.71 - 5.71	***

Data Plot and Equation

Caution – Small Sample Size



**Table E.33 Pass-By and Non-Pass-By Trips Weekday
Land Use Code 938—Coffee/Donut Shop with Drive-Through Window
and No Indoor Seating (Coffee/Esspresso Stand)**

SIZE (1,000 SQ. FT. GFA)	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			SOURCE
						PRIMARY	DIVERTED	TOTAL	
0.1	Vancouver, WA	Nov. 1997	69	6:00 a.m.–6:00 p.m.	83	—	—	17	Kittelson & Associates Inc.

“—” means no data were provided

**Table E.34 Pass-By and Non-Pass-By Trips Weekday
Land Use Code 938—Coffee/Donut Shop with Drive-Through Window
and No Indoor Seating (Coffee/Esspresso Stand)**

EMPLOYEES	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			SOURCE
						PRIMARY	DIVERTED	TOTAL	
1	Vancouver, WA	Nov. 1997	70	6:00 a.m.–6:00 p.m.	83	—	—	17	Kittelson & Associates Inc.
1	Woodburn, OR	Feb. 1998	109	6:00 a.m.–6:00 p.m.	95	—	—	5	Kittelson & Associates Inc.
1	Vancouver, WA	Feb. 1998	83	6:00 a.m.–1:00 p.m.	89	—	—	11	Kittelson & Associates Inc.

Average Pass-By Trip Percentage: 89

“—” means no data were provided

**Table E.35 Pass-By and Non-Pass-By Trips Weekday, AM Peak Period
Land Use Code 944—Gasoline/Service Station**

SIZE (1,000 SQ. FT. GFA)	VEHICLE FUELING POSITIONS	LOCATION	WEEKDAY SURVEY DATE	NO. OF INTERVIEWS	TIME PERIOD	PASS-BY TRIP (%)	NON-PASS-BY TRIPS (%)			ADJ. STREET PEAK HOUR VOLUME	SOURCE
							PRIMARY	DIVERTED	TOTAL		
2.3	6	Gaithersburg, MD	1992	37	7:00–9:00 a.m.	32	41	27	68	2,080	RBA
2.1	6	Bethesda, MD	1992	26	7:00–9:00 a.m.	58	23	19	42	2,080	RBA
1.7	6	Wheaton, MD	1992	21	7:00–9:00 a.m.	67	14	19	33	900	RBA
2.0	8	Gaithersburg, MD	1992	46	7:00–9:00 a.m.	87	13	0	13	2,235	RBA
1.2	6	Damascus, MD	1992	21	7:00–9:00 a.m.	43	28	29	57	870	RBA
0.3	12	Wheaton, MD	1992	36	7:00–9:00 a.m.	61	8	31	39	3,480	RBA

Average Pass-By Trip Percentage: 58

“—” means no data were provided



February 2023

Ziggi's Drive Thru-Severance – Legal Description
Project No. 1076.0005

Lot 1 of the Red Willow Subdivision EXCEPT for the 20' of public road Right-of-Way described in the Deed recorded January 30, 2020, at Reception No. 4562490, located west of the intersection of Weld County Road 21 and the Weld County Road 74, in Section 34, Township 07 North, Range 67 West of the 6th P.M. Severance, CO.

Containing 32217.42 square foot or 0.74 acres.

748 Whalers Way
Suite 200
Fort Collins, CO 80525
970.226.0557 main
970.226.0204 fax

ideas@tstinc.com
www.tstinc.com

From: [Jim Gerdeman](#)
To: [Abdul Barzak](#)
Subject: RE: Ziggis Site Plan Internal Staff Review - 1st Submittal
Date: Wednesday, September 14, 2022 1:41:56 PM
Attachments: [image001.png](#)

No issue from PD.

Jim

From: [Chrys Hinze](#)
To: [Abdul Barzak](#)
Cc: [Cali Gunter](#); [Tad Moen](#)
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Wednesday, December 21, 2022 4:09:50 PM
Attachments: [image003.png](#)

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Thank you, Abdul.

At this time the North Poudre Irrigation Company has no comment concerning this project.

Chrysten Hinze, Esq.
Lind, Ottenhoff & Root, LLP
355 Eastman Park Dr. #200
Windsor, CO 80550

Email: chrys@lorlegal.com
Tel. 970.674-9888
Fax 970.674-9535

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From: [Michael McCullar](#)
To: [Abdul Barzak](#)
Subject: Re: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Monday, December 19, 2022 8:37:37 AM
Attachments: [image001.png](#)

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no comment

Michael McCullar, Chief Operating Officer
Weld RE4 School District
970-686-8015
180 North 8th Street
Windsor, CO 80550
www.weldre4.org

From: [Christine Lutz](#)
To: [Abdul Barzak](#)
Cc: [Scott Ballstadt](#); [Kimberly Lambrecht](#); [Mark Price](#)
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Friday, December 16, 2022 3:48:30 PM
Attachments: [image001.png](#)

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Hello Abdul,

The Town of Windsor has reviewed the application materials provided for the Ziggi's project. The subject property is outside the Town's Growth Management and Community Influence areas, therefore we have no comment.

Thank you for the opportunity to review the project.

Have a wonderful weekend,

Chrissy

Christine Lutz

Planning Technician

Windsor Town Hall | Community Development Dept.
301 Walnut St. | Windsor, CO 80550

Dir: 970-674-2439 | www.windsorgov.com
planningtechs@windsorgov.com

Your patience is appreciated while we are experiencing a high volume of incoming work being processed. You may find some of your answers by going to the website and referring to the [Planning](#) page and [FAQ's](#) or the [Municipal Code](#).

The Town of Windsor offices will be closed in observance of Christmas and New Year's Day the following:

The afternoon of Friday, December 23rd; Monday, December 26th; The afternoon of Friday, December 30th; Monday, January 2nd.

From: [Heather S Alderman](#)
To: [Abdul Barzak](#)
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Friday, December 16, 2022 12:38:34 PM
Attachments: [image004.png](#)

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We do not have comments.

Thanks,
Heather

Heather S. Alderman
Project Hydrologist
Paragon Consulting Group, Inc.
1103 Oak Park Drive, Suite 110
Fort Collins, Colorado 80525
Office 970-377-1600
Mobile 303-901-1701
Fax 970-377-1880



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From: [Sandi Friedrichsen](#)
To: [Abdul Barzak](#)
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Tuesday, December 27, 2022 3:56:39 PM
Attachments: [image001.png](#)

Caution: This is an external email and may have a suspicious subject or content. Please take care when clicking links or opening attachments. When in doubt, contact your OnixIT at support@onixit.com or (970) 223-0300.

- No occupant load information was given on these plans. Dependent on what the occupant load is for this building, a fire sprinkler system may be required (over 100 people in an A-2 occupancy based on occupant load, this is for the building).
2. With this building being 4,000 sf with no fire sprinkler system, assuming it is Type V-B construction, 1 hydrant will be required to have a fire flow of 1750 gpm for 2 hours at 20 psi. That hydrant must be within 150 ft of the building.

Sandra Friedrichsen
Fire Marshal
Windsor Severance Fire Rescue
100 7th Street - Windsor, CO 80550
Office Hours Monday - Thursday 0700-1700
Main - (970) 686-2626
Email – firemarshal@wsfr.us
www.wsfr.us

From: [Sandi Friedrichsen](#)
To: [Abdul Barzak](#)
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)
Date: Monday, January 30, 2023 2:29:29 PM
Attachments: [image002.png](#)

Caution: This is an external email and may have a suspicious subject or content. Please take care when clicking links or opening attachments. When in doubt, contact your OnixIT at support@onixit.com or (970) 223-0300.

With the static at 89 psi, the residual at 51 psi, and the flow at 1580gpm..the GPM at 20 psi is 2180gpm out of this hydrant. As long as this is within 150 ft of the building on the same side of the street and not blocked by anything...it will work for the building that was submitted. Please let me know if you have any other questions. Thank you.

Sandra Friedrichsen
Fire Marshal
Windsor Severance Fire Rescue
100 7th Street - Windsor, CO 80550
Office Hours Monday - Thursday 0700-1700
Main - (970) 686-2626
Email – firemarshal@wsfr.us
www.wsfr.us

From: Abdul Barzak <abarzak@townofseverance.org>
Sent: Friday, January 27, 2023 1:40 PM
To: Sandi Friedrichsen <sfriedrichsen@wsfr.us>
Subject: RE: Ziggis Severance Site Plan Revised (Town of Severance Planning Referral)

Sandi,

Please see attached Hydrant flow test for a winter scenario. This is the hydrant located in front of 9845 E. Harmony Road. Can you please let me know if this meets the minimum requirement?

I appreciate your help, thank you!

SEVERANCE PLANNING COMMISSION

RESOLUTION NO. PC-2023-02R

**A RESOLUTION OF THE SEVERANCE PLANNING COMMISSION
RECOMMENDING APPROVAL OF SITE DEVELOPMENT PLAN FOR
CERTAIN REAL PROPERTY LOCATED WITHIN THE RED WILLOW
SUBDIVISION**

WHEREAS, American Eagle Properties, (“Applicant”), as owner of certain real property legally described as Lot 1, Red Willow Subdivision, Town of Severance (“Property”), has submitted an application for site plan approval to develop and construct a single 4,000 s.f. building that will house a retail coffee shop and two future 1,250 s.f. tenant spaces on the Property (the “Application”); and

WHEREAS, the Severance Planning Commission has conducted a public hearing on the Application, and has considered all the evidence presented at the public hearing, the relevant site plan standards and review criteria set forth in the Severance Municipal Code (“Code”); and

WHEREAS, the Severance Planning Commission wishes to make a recommendation to the Town Council regarding the Application.

NOW, THEREFORE, BE IT RESOLVED BY THE SEVERANCE PLANNING COMMISSION:

1. That the Severance Planning Commission recommends approval of the Application, including the site plan and development agreement, with the following conditions:

- a. All remaining technical corrections to the Site Plan and Construction Drawings requested by Town staff shall be made to the Town staff’s satisfaction.
- b. Final Construction Documents shall be approved by the Town Engineer prior to the start of construction activities.
- c. The Town and the Applicant shall execute a development agreement, in a form to be approved by the Town Attorney.

PASSED AND ADOPTED this ____ day of _____, 2023.

Chairperson

ATTEST:

Leah Vanarsdall, MMC, Town Clerk