

MEMORANDUM

To: Town of Castle Rock, Public Works Department

From: Cassie Slade, PE, PTOE

Date: April 19, 2024

Project: Dawson Trails

Subject: Planning Area B-1 (East) Traffic Conformance Letter - Updated

The Fox Tuttle Transportation Group has prepared this traffic conformance letter for the proposed development of single-family detached homes located in the east half of Planning Area B-1 of the Dawson Trails development in Castle Rock, Colorado. The site is located southwest of the intersection of Crystal Valley Parkway and Dawson Trails Boulevard, as shown on **Figure 1**. This phase of Dawson Trails plans to include 229 dwelling units and construct a collector roadway to provide access to Dawson Trails Boulevard. It is understood that there will be two (2) full movement accesses on the collector street to support mobility and accessibility to the eastern portion of Planning Area B-1. It should be noted that future phases will complete the homes planned for the entirety of Planning Area B-1 (up to 484 units) and there will an internal connection between the east and west sides of Planning Area B-1.

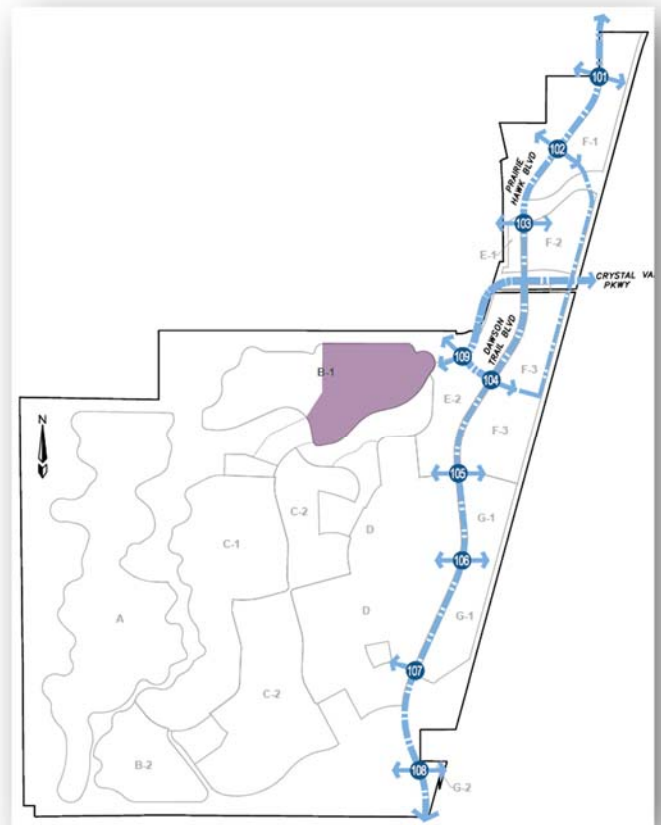


Figure 1. Vicinity Map

Dawson Trails: Planning Area B-1 (East)

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The purpose of this "traffic conformance letter" is to determine if the proposed use is significantly different than the trip generation assumptions for this site as analyzed in the "Master" study and the Phase 1 Traffic Study and to identify if additional traffic analysis is necessary.

Comparison to Master Traffic Study

A "Master" transportation study¹ (MTS) was previously prepared for the entire 2,063± acres of Dawson Trails that will include a mix of residential, commercial, office, light industrial, schools, and recreation. The MTS assumed that the eastern half of Planning Area B-1 would include 310 single-family detached homes. The MTS focused on the full movement intersections along Dawson Trails Boulevard and did not evaluate access intersection or collector/collector intersections since this detail would be more appropriate in traffic studies for phases or specific projects.

The latest site plan shows that the eastern portion of Planning Area B-1 will include 229 single-family detached homes, which is 81 fewer units than in the [MTS](#). Note that this is not the entirety of Planning Area B-1, which will be completed in future phases.

Trip Generation

To establish the volume of trips associated with the proposed project, the data contained in the *Institute of Transportation Engineers (ITE) Trip Generation Manual*² for single-family detached housing was applied. The proposed land use is estimated to mostly be new trips, known as 'primary trips', which is discussed below:

Primary Trips. These trips are made specifically to visit the site and are considered "new" trips. Primary trips would not have been made if the proposed project did not exist. Therefore, this is the only trip type that increases the number of trips made on a regional basis.

Table 1 summarizes and compares the trip generation estimated from the MTS and the latest site plan for the first phase of Planning Area B-1 for weekday daily, weekday AM, weekday PM, and Saturday peak periods.

¹ *Dawson Trails Master Transportation Study*. Fox Tuttle Transportation Group, LLC. June 2022.

² *Trip Generation Manual*. 11th Edition. Institute of Transportation Engineers. Washington, DC. 2021.

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Table 1. Trip Generation Summary and Comparison

Planning Area	Land Use	Size	Unit	Non-Auto Factor	Internal Capture Adjust	Average Daily Trips				AM Peak Hour Trips				PM Peak Hour Trips				Saturday Peak Hour Trips			
						Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out	Rate	Total	In	Out
Master Transportation Study																					
B-1 East	ITE 210 - Single-Family Detached Housing	310	Dwelling Units	0.95	1.00	9.44	2,780	1,390	1,390	0.74	218	55	163	0.99	292	184	108	0.88	258	139	119
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B-1 East	ITE 210 - Single-Family Detached Housing	229	Dwelling Units	0.95	1.00	9.44	2,054	1,027	1,027	0.74	161	40	121	0.99	215	135	80	0.88	190	103	87
Difference in Trips (MTS vs. Updated)						-726 -363 -363				-57 -15 -42				-77 -49 -28				-68 -36 -32			

Source : ITE Trip Generation Manual and Handbook, 11th Edition, 2021.

The latest site plan has fewer trips than was estimated in the MTS for the eastern portion of Planning Area B-1. The MTS included up to 484 dwelling units in Planning Area B-1. Planning for the remaining western property of B-1 has not been developed and will be evaluated with a future submittal. The reduction in trips for the eastern portion of Planning Area B-1 may be absorbed with the future phase of this area.

There will be little to no impact to the intersection of **Crystal Valley Parkway at Dawson Trails Boulevard (#7)**. In the Phase 1 – Costco Development Traffic Analysis (February 2023), it was estimated that this intersection would continue to operate at LOS D/E/E in the AM/PM/Saturday peak hours with the completion of Costco and approximately 513 dwelling units in this area of Dawson Trails. All of the movements that were previously calculated to operate at LOS E in one or more peak hour were shown to remain at the same level of service with only slight shifts in delay.

Proposed Access

Per the Dawson Trails Filing No. 2 Infrastructure Plan (CD23-0045), the collector roads will be constructed prior to the completion of Planning Area B-1 and the collectors will connect Dawson Trails Boulevard to local streets into each planning area. For the east portion of Planning Area B-1, a collector roadway (Gambel Ridge Boulevard) will be extended west from Dawson Trails Boulevard at Crystal Valley Boulevard which will lead to the proposed residential community. Per Town direction, this roadway will be a four-lane, major collector through the first roundabout at Quandary Peak Drive with a center median and left-turn pockets at intersections. Southwest of the roundabout, adjacent to Planning Area B-1, Gambel Ridge Boulevard will become a two-lane minor collector.

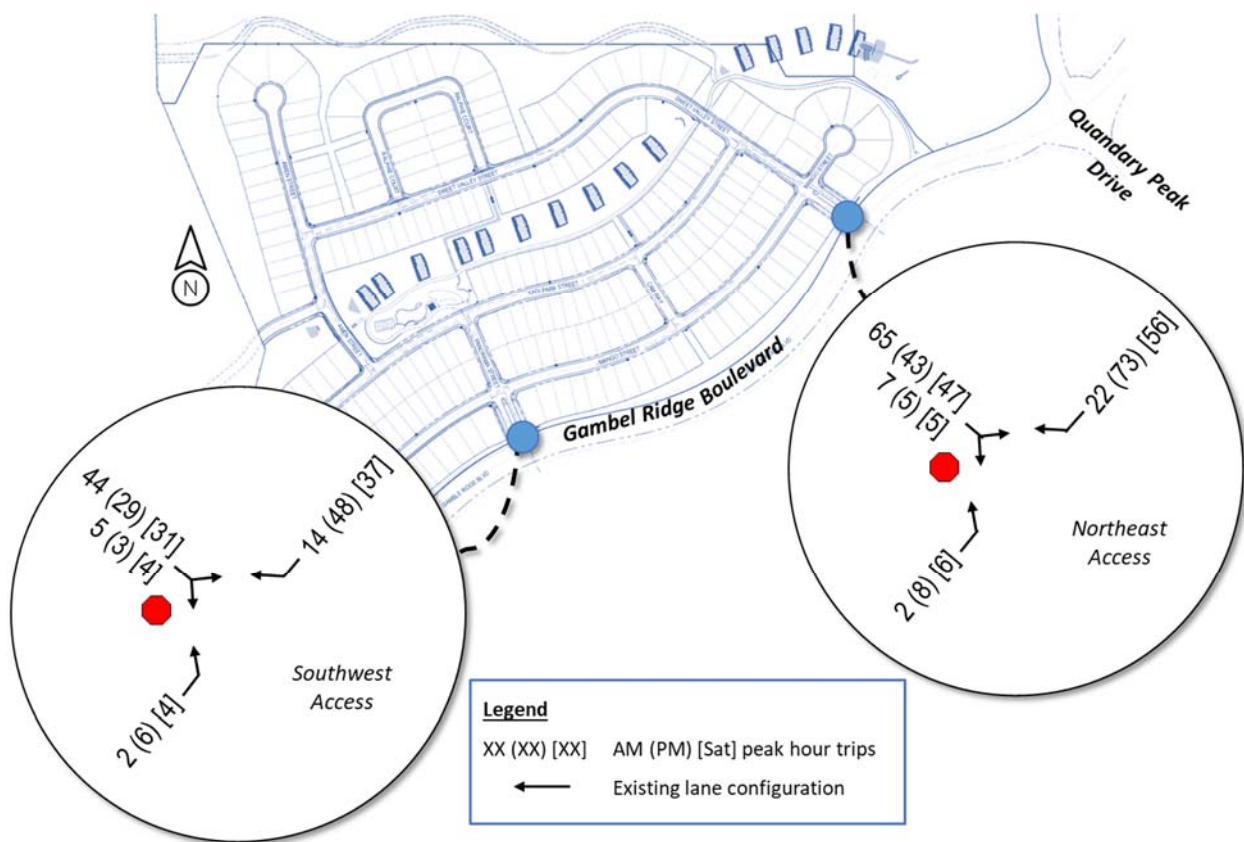
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The site plan for Planning Area B-1 (east portion) indicates there will be two (2) full-movement, side-street stop-controlled accesses on Gambel Ridge Boulevard.

A high-level estimate of traffic entering and exiting the accesses was performed, assuming future connectivity to the south. It was assumed that the northeast access will serve approximately 60% of the trips and the remaining 40% will utilize the southwest access. The estimated turning volumes, as shown on **Figure 2**, indicate there is no need for auxiliary lanes on the collector road at the Planning Area B-1 intersections. It is understood that the major collector designation will provide left-turn pockets at intersections even if volumes don't warrant the need, which has been included in the roadway design of Gambel Ridge Boulevard.



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The daily roadway volumes with the completion of the eastern portion of Planning Area B-1 are shown on **Figure 3**. The analysis indicates that the two (2) entry roadways are anticipated to have less than 1,300 vehicles per day (vpd) adjacent to the major collector. The internal local roadways were estimated to have less than 250 vpd. The roadway designs will accommodate the volumes associated with Planning Area B-1.

Figure 4 shows the anticipated total volume that includes an increase associated with the western portion of Planning Area B-1 and inclusion of the planned cross access. It was assumed that of the remaining 255 units (484 total – 229 in the east) that 10% of homes would utilize the southwest access of the subject property, which equates to 25 homes. It is anticipated that the western portion of the Planning Area B-1 will primarily utilize their direct access to the major collector and not cut-through to the access of the eastern portion. There are no additional improvements needed to accommodate the full buildout of Planning Area B-1.

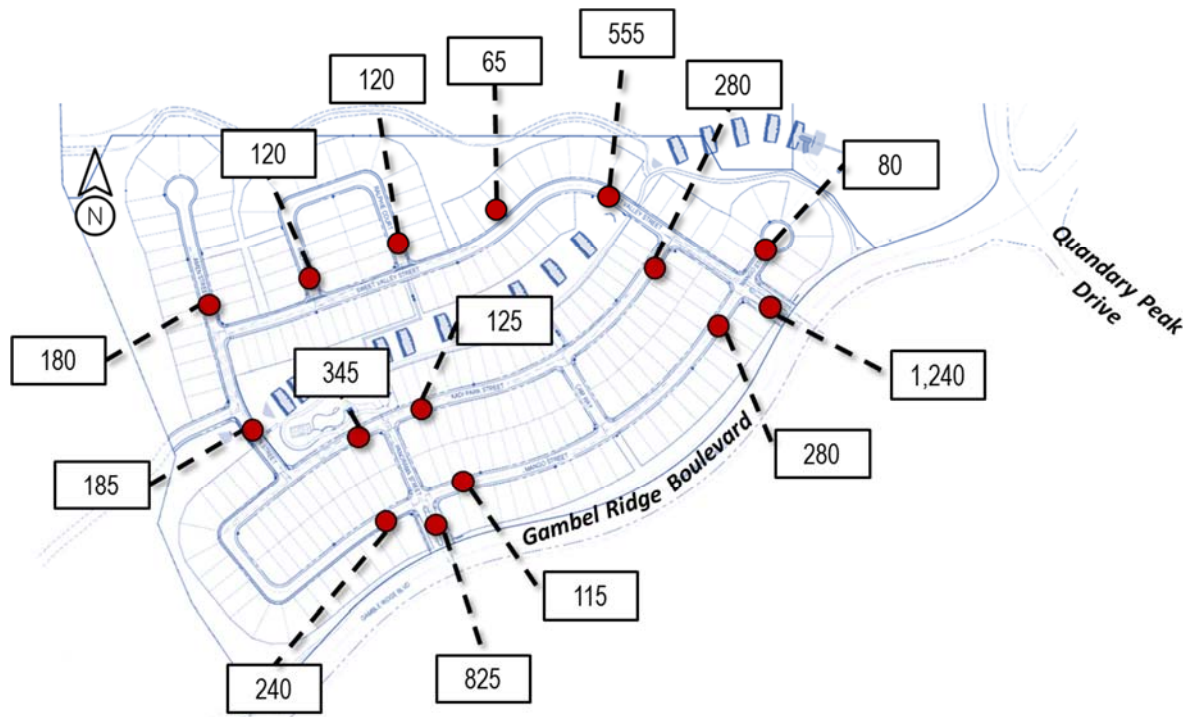


Figure 3. Estimated Daily Roadway Volumes within Planning Area B-1 (East)

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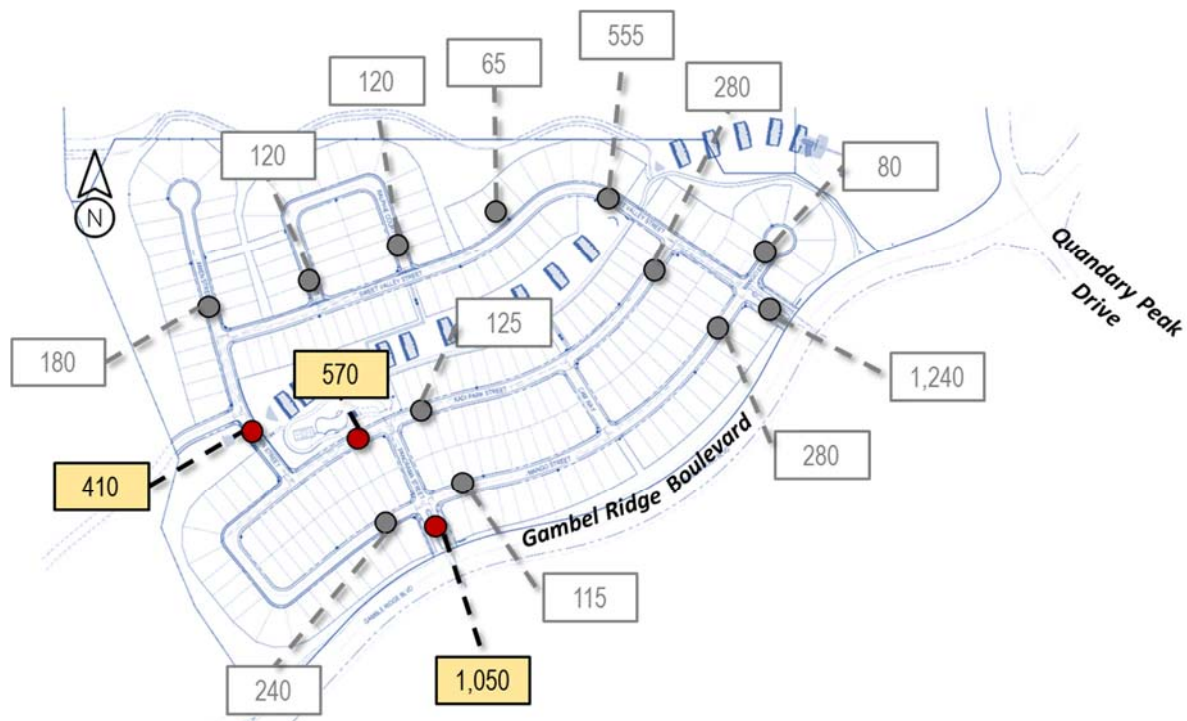


Figure 4. Total Daily Roadway Volume with Completion of Planning Area B-1

The anticipated ultimate volumes on Gabel Ridge Boulevard are provided on **Figure A** (attached), which assumes full buildout of Dawson Trails Boulevard and the proposed density presented in the Master Traffic Study.

The Dawson Trails Filing 2 Infrastructure Plan will include collector roadways that lead to Dawson Trails Boulevard and Crystal Valley, as shown in **Figure 5**.

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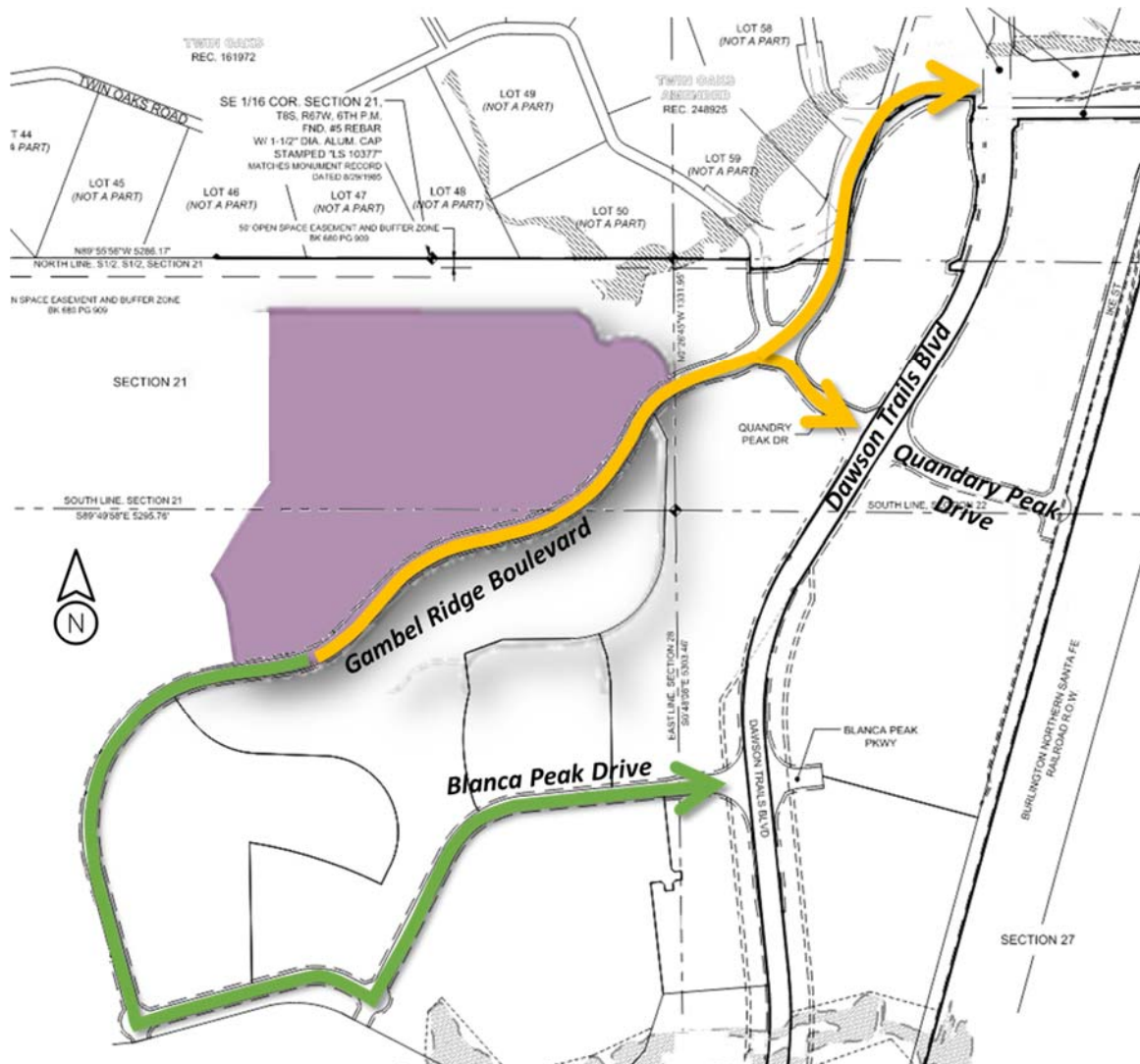


Figure 5. Connectivity between Planning Area B-1 and Dawson Trails Boulevard

Multi-Modal

Dawson Trails will provide an extensive trail and multi-modal network to encourage the community to reduce vehicular travel and to provide amenities for recreation. **Figure 6** provides a conceptual plan for the trail network in and around Planning Area B-1 and the connectivity to Planning Area D and Dawson Trails Boulevard. Refer to the plan set for more details on the pedestrian and bicycle network.

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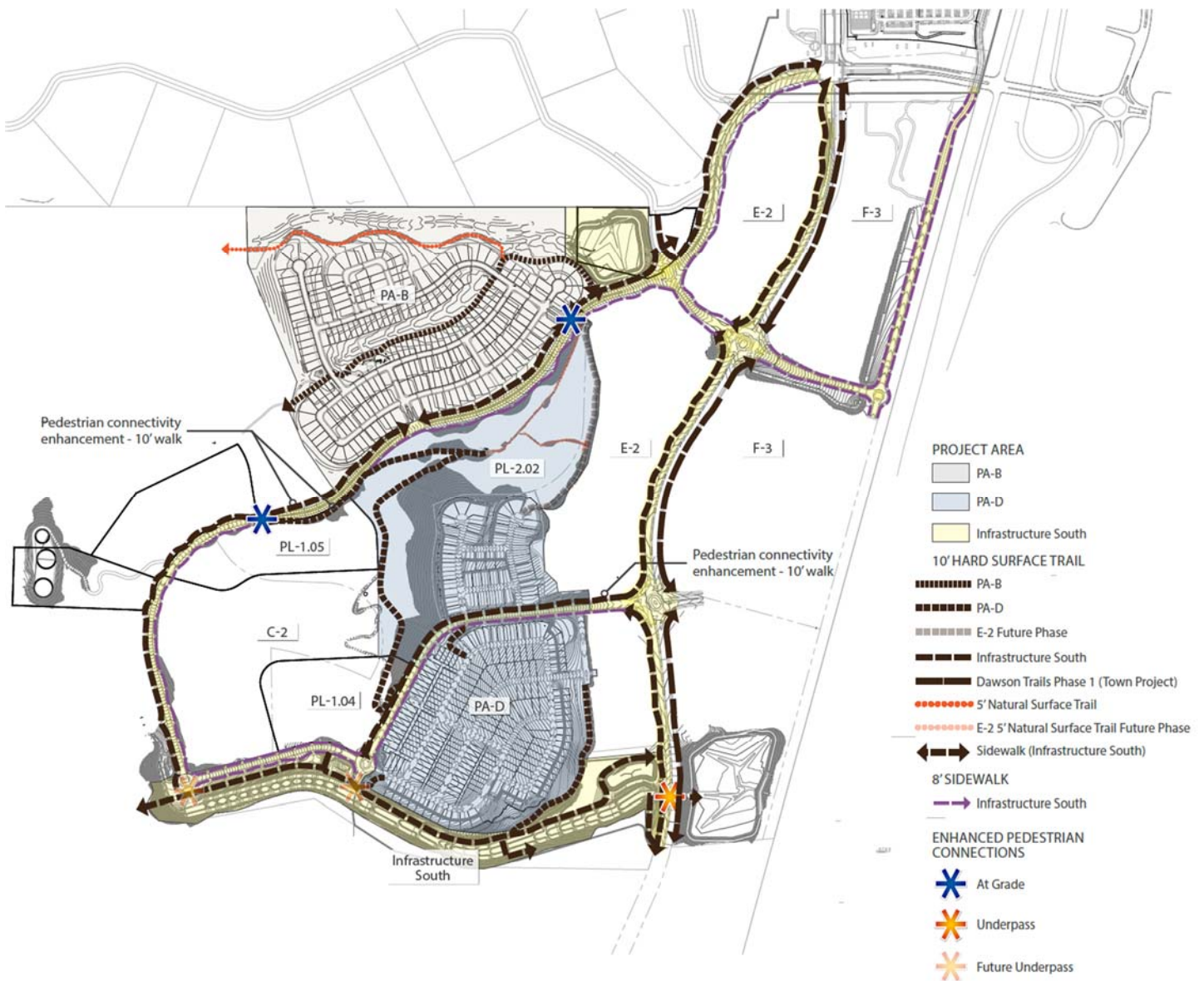


Figure 6. Proposed Multi-Modal Network for Planning Area B-1

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Conclusions

The most current site plan for Planning Area B-1 (east portion) is consistent with the assumptions of the MTS with fewer homes and trips than estimated for this parcel. **It is anticipated that the future planned roadway network and intersections can accommodate the project trips without the need for additional analysis or mitigation measures.** This includes the potential traffic associated with the western portion of Planning Area B-1 that will be constructed in a future phase.

Hopefully the contents of this memorandum are helpful. If you have any questions, please give me a call.

Sincerely,

FOX TUTTLE TRANSPORTATION GROUP, LLC



Cassie Slade, P.E., PTOE
Principal



Attachments:

Figure A – Full Buildout Roadway Master Plan

KEY

- # FUTURE FULL-MOVEMENT INTERSECTION
- PROJECT BOUNDARY
- MINOR COLLECTOR 2-LANE ROADWAY
- MAJOR COLLECTOR 2-LANE ROADWAY
- MINOR ARTERIAL 4-LANE ROADWAY
- MAJOR ARTERIAL 4-LANE ROADWAY
- MAJOR ARTERIAL 6-LANE ROADWAY
- X,XXX ESTIMATED DAILY VOLUME

Note: The daily volumes were estimated based on the master traffic study and recent traffic conformance letters. Volumes are subject to change as site plans are developed and land uses, access, etc. are further defined.

