WILD PLUM FARM
TRAFFIC IMPACT STUDY
June 2014

EXECUTIVE SUMMARY

The Town of Columbine Valley is contemplating a 100-acre residential development ("Wild Plum Farm") in the Town of Columbine Valley, Colorado. The site is located east of Platte Canyon Road and south of Fairway Lane. As currently envisioned, the development may consist of up to 200 single-family detached residential dwelling units. At the request of the Town, an alternate development having 100 single-family detached residential dwelling units was also evaluated. A one hundred unit development would be consistent with the Town's Master Plan.

Stolfus & Associates, Inc. was retained by the Town of Columbine Valley to prepare a traffic impact study for the Wild Plum Farm development. A summary of the study findings follows:

1. Two hundred (200) residential dwelling units generate approximately 1,990 vehicle trips per day, including approximately 149 and 197 trips during the weekday a.m. and p.m. peak hours, respectively. By comparison, a one hundred (100) dwelling unit scenario generates 1,050 weekday daily, 80 weekday a.m., and 105 weekday p.m. trips.
2. The characteristics of Hunter Run Ln make it an appropriate access to Wild Plum Farm: it is an underutilized access to Platte Canyon Rd; it functions as a collector roadway with few properties that directly access the roadway; and its proximity to Platte Canyon Rd minimizes out-of-direction travel and related impacts on neighboring properties. Fairway Ln and Middlefield Rd, other collector roadways in the Town, provide secondary access to the site as well as primary access for traffic to/from the east on Bowles Ave.
3. As a state highway, Platte Canyon Rd is under the jurisdiction of the Colorado Department of Transportation (CDOT). Wild Plum Farm will increase the volume of traffic accessing the highway at Hunter Run Ln by more than 20%, therefore a State Highway Access Permit will be necessary. The alternate scenario also distributes traffic to Platte Canyon Rd via Fairway Ln – resulting in the need for an access permit at that location as well.
4. The intersection of Platte Canyon Rd and Hunter Run Ln warrants a southbound left turn deceleration lane upon development of Wild Plum Farm. The existing southbound left turn lane does not meet current CDOT standards for a roadway with a NR-A access category. Platte Canyon Rd could be restriped to provide a longer deceleration lane; however this would impact the northbound left-turn lane for Coal Mine Rd which is a much more critical movement to overall traffic flow through the corridor. The study has concluded that vehicle queues for the southbound left turn movement will typically be one car length or less. For these reasons, no changes to existing left turn striping along Platte Canyon Rd is recommended.
5. The intersection of Platte Canyon Rd and Hunter Run Ln warrants a northbound right turn deceleration lane upon development of a 200-unit residential development (would not be warranted with a 100-unit development). Construction of a northbound right turn lane may result in substantial impacts to the adjacent property, including the need for property acquisition, utility relocation, elimination of mature landscaping, and reconstruction of a brick privacy fence. Proximity of the relocated fence to the residence would likely be unacceptable.

The addition of the northbound right turn lane will do little to improve operations of the intersection and for this reason is not recommended.

6. Minor improvements to the Hunter Run Ln approach to Platte Canyon Rd are recommended to provide additional storage for left turning vehicles (approximately 100-ft of storage is required).
7. The study has concluded that the potential traffic impacts of the Wild Plum Farm development can be addressed by the transportation improvements outlined in this report.
8. Additional findings and recommendations related to internal Town roadways and the Platte Canyon Rd corridor are currently in development.

EXISTING CONDITIONS

The Wild Plum Farm site is located in the Town of Columbine Valley east of Platte Canyon Road and south of Fairway Lane. The site is approximately 100 acres of mostly undeveloped land. A vicinity map is provided in **Figure 1**.

Major roadways in the vicinity of the site are described below:

Platte Canyon Road is a two-lane roadway with a speed limit of 45 miles per hour in the vicinity of the site. Signalized intersections exist at the intersections with Bowles Ave, Ponds Cir, Fairway Ln, Coal Mine Ave, and Mineral Ave. Platte Canyon Rd is also a state highway (SH 75B). The traffic signals at Bowles Ave and at Mineral Ave are under the jurisdiction of the City of Littleton while the remaining signals are under the jurisdiction of the Colorado Department of Transportation (CDOT).

Bowles Avenue is a four-lane urban arterial located within the City of Littleton. Signalized intersections exist at the intersections with Platte Canyon Rd and Middlefield Rd. Traffic signals along Bowles Ave are part of a coordinated signal system maintained by the City of Littleton.

Mineral Avenue/Ken Caryl Road is a four-lane arterial west of Platte Canyon and a six-lane arterial to the east. A signal exists at the intersection with Platte Canyon Rd.

Hunter Run Lane is a two-lane collector roadway located within the Town of Columbine Valley. The posted speed limit is 25 MPH. Currently, Hunter Run Ln provides access to Polo Meadows, a residential development consisting of 18 homes; and to two additional homes located near the roadway's end. Hunter Run Ln also provides access to the Wild Plum Farm property. Hunter Run Ln intersects with Platte Canyon Rd at an unsignalized t-intersection.

Fairway Lane is a two-lane residential collector roadway located within the Town of Columbine Valley. Fairway Ln borders the Wild Plum Farm property to the north and intersects with Platte Canyon at a signalized intersection. Fairway Ln, along with Middlefield Rd, provides primary access to the Columbine Country Club.

Middlefield Road is a two-lane collector roadway located within the Town of Columbine Valley. Middlefield Rd intersects with Bowles Ave at a signalized intersection.

Weekday morning (7:00-9:00 a.m.) and afternoon (4:00-6:00 p.m.) turning movement counts were collected on Wednesday, March 12, 2014 at the following intersection locations:

- Platte Canyon Rd & Bowles Ave
- Platte Canyon Rd & Village Ct

- Platte Canyon Rd & Fairway Ln
- Platte Canyon Rd & Coal Mine Rd
- Platte Canyon Rd & Hunter Run Ln
- Platte Canyon Rd & Mineral Ave
- Bowles Ave & Middlefield Rd

Based on the traffic count results, the weekday a.m. peak hour is from 7:15 to 8:15 a.m. and the p.m. peak hour is between 5:00 and 6:00 p.m.

Figure 2 summarizes the peak hour traffic count results.

At the request of the Town of Columbine Valley, additional traffic counts were collected on Wednesday, March 26, 2014 at the following locations:

- Fairway Lane & Wedge Way
- Fairway Lane & Club Lane
- Fairway Lane & Driver Lane
- Fairway Lane (48-hour count by direction)

Subsequent to the data collection, it was realized that the Town counts were collected during Spring Break. For this reason, an additional count along Fairway Lane was collected on Thursday, April 14, 2014.

TRIP GENERATION

Trip generation for Wild Plum Farm was estimated using the industry-standard reference *ITE Trip Generation Manual, 9th edition*. Although a formal development proposal for Wild Plum Farm has not yet been made, a development of 200 single-family detached residential units was initially assumed. The results of the trip generation calculations are shown in **Table 1**.

Table 1: Wild Plum Farm Trip Generation Estimate

ITE Code	Land Use	Units		Weekday Rate[1]	AM Peak Rate[1]	AM Peak Entering %	AM Peak Exiting %	PM Peak Rate[1]	PM Peak Entering %	PM Peak Exiting %	Weekday Total Trips	AM Peak Trips Entering	AM Peak Trips Exiting	PM Peak Trips Entering	PM Peak Trips Exiting
210	Single-Family Detached Housing	200	D.U.	9.94	0.75	25%	75%	0.98	63%	37%	1990	37	112	124	73

[1] Rates calculated from Fitted Curve Equations

As shown above, 200 single-family detached residential units will generate approximately 1,990 vehicle trips per day. During the weekday a.m. peak hour, 37 entering and 112 exiting vehicle trips are expected. During the weekday p.m. peak hour, 124 entering and 73 exiting trips are anticipated.

The Town of Columbine Valley requested that the traffic study also evaluate an alternative development scenario consisting of 100 residential dwelling units. Information pertaining to that evaluation is presented later in this report.

TRIP DISTRIBUTION

Once the number of trips generated by the development are known, the trip distribution step determines the directions that they approach and depart the site. Development-generated traffic volumes are then assigned to the street system based upon the expected trip distribution.

Generally, the traffic generated by Wild Plum Farm is expected to be similar to the distribution of the larger residential community (the Town of Columbine Valley). For this reason, the existing traffic counts were used to estimate the trip distribution for Wild Plum Farm shown in **Figure 3**.

The results show that the majority of trips are expected to occur between Wild Plum Farm and points north and east. A much smaller percentage of trips will occur to/from the south and west.

TRAFFIC ASSIGNMENT

Although a formal site plan is not yet available, it is anticipated that Wild Plum Farm will access both Hunter Run Ln and Fairway Ln. For this proposed access configuration, the 40% of traffic to/from the east on Bowles Ave will likely pass along Fairway Ln to Middlefield Rd and Bowles Ave. Hunter Run Ln to Platte Canyon Rd will provide the most expedient access for all other trips.

The traffic generated by the Wild Plum Farm (shown in Table 1) was assigned to the street network according to the distribution shown in Figure 3. The resulting project trips are shown in **Figure 4**.

Project trips were combined with existing traffic volumes to determine the Existing w/Project traffic volumes shown in **Figure 5**. Although build-out of the site will likely occur in phases and take several years to complete, for the purposes of this study it has been assumed that all development occurs in a single phase.

FUTURE TRAFFIC FORECASTS

Over time, existing traffic volumes in the vicinity of the project may grow as a result of other area development. CDOT maintains a 20-year growth factor for all state highways, including SH 75B (Platte Canyon Rd). Because the immediate area is largely built out, CDOT's 20-year factor for Platte Canyon Rd is relatively low and ranges from 1.21 near Bowles Ave to 1.24 near Mineral Ave. Future (Year 2034) traffic volumes were estimated by increasing existing traffic volumes by CDOT's 20 year factor at the two major intersections and by increasing through volumes along Platte Canyon Rd accordingly.

Over the past 10 or so years, Average Daily Traffic (ADT) volumes along Platte Canyon Rd have ranged from a low of 17,114 vehicles per day (in 2010) to a high of 21,607 vehicles per day (in 2007). The most recent data from 2012 suggests that the current ADT is approximately 18,300 vehicles per day. In order to put CDOT's 20-year growth factors into perspective, existing volumes times a factor of 1.18 would adjust existing volumes to reflect the volumes experienced in 2007; a time when the economy was at its most recent peak.

Future (2034) Traffic Volumes are shown on **Figure 6**. Project trips were combined with future traffic volumes to derive the Future (2034) w/Project Traffic Volumes shown on **Figure 7**.

TRAFFIC ANALYSIS

Traffic analyses were conducted using industry standard *Highway Capacity Manual* methodologies as implemented by the SYNCHRO software program.

Analysis included intersection Level-of-Service (LOS), which is a measure of the quality of traffic flow. LOS ranges from LOS A (nearly ideal traffic conditions with very little delay for motorists) to LOS F (poor traffic conditions with long motorist delays). LOS C is typically considered a "good" traffic condition. LOS D or better conditions are typically desirable; however, LOS E conditions are not uncommon during peak periods. LOS F is also not uncommon for side street traffic movements at full movement, unsignalized intersections with high volume arterial roadways.

Table 2 provides a summary of the *Highway Capacity Manual's* LOS Criteria. **Table 3** provides a summary of the intersection LOS for the various intersections and traffic scenarios considered in this study.

LOS	**Signalized Intersection** Average Delay (s/veh)	**Unsignalized Intersection** Average Delay (s/veh)
A	<= 10	<=10
B	>10-20	>10-15
C	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Table 2: Level-of-Service (LOS) Criteria for Intersections

Table 3: Level-of-Service (LOS) Summary

	Existing		Existing w/Project		Future (2034)		Future (2034) w/Project	
Intersection	AM	PM	AM	PM	AM	PM	AM	PM
S Platte Canyon / W Mineral Ave	D	C	D	C	F	D	F	D
S Platte Canyon / Hunter Run Ln	C	B	D	E	D	C	E	F
S Platte Canyon / Coal Mine / Doral Ln	F	D	F	D	D	E	E	E
S Platte Canyon / Fairway Ln	B	A	B	A	D	A	D	B
S Platte Canyon / Village Ct	E	F	F	F	F	F	F	F
S Platte Canyon / W Bowles Ave	E	E	E	E	F	E	F	E
W Bowles Ave / Middlefield	B	B	B	B	B	B	C	B

Table 4 provides a summary of the 95th percentile queue length for intersections and movements potentially affected by Wild Plum Farm traffic. The 95th percentile queue length is derived on a probability basis, and represents a length of queue that is exceeded only 5 percent of the time on average. In other words, for 95 percent of the time, the queue length will be less than the number reported in the table.

Table 4: Queue Length Summary (95th Percentile, in feet)

Intersection	Movement	Existing		Existing w/Project		Future		Future w/Project	
		AM	PM	AM	PM	AM	PM	AM	PM
S Platte Canyon / W Mineral Ave	EB Left	91	60	92	65	168	#205	173	#208
	SB Left	#288	#226	#308	#250	#564	#350	#581	#381
S Platte Canyon / Hunter Run Ln	WB Left	1	0	15	21	2	0	32	74
	WB Right	2	1	9	6	2	1	14	8
	SB Left	1	1	2	5	1	1	2	6
S Platte Canyon / Coal Mine / Doral Ln	NB Left	44	144	48	148	51	#238	54	#248
	NB Thru	502	314	545	334	#1033	319	#1081	336
W Bowles Ave / Middlefield Rd	WB Left	27	19	41	34	45	13	#88	19
	NB Thru/Left	28	53	28	53	41	57	39	57
	NB Right	41	41	49	49	87	44	143	62
#95th Percentile volume exceeds capacity, queue may be longer									

The following provides a summary of the LOS and queue length findings for each analysis scenario:

Existing Condition: Currently, traffic conditions within the study area are good; with the exception of the Coal Mine Rd, Village Ct, and Bowles Ave intersections along Platte Canyon Rd. The traffic signal at Coal Mine Rd is currently "split phased" which means that eastbound and westbound directions have to occur sequentially rather than simultaneously; thereby reducing the efficiency of traffic flow. There is also a large eastbound to northbound movement that contributes to poor (LOS F) operations in the a.m. peak hour.

Village Ct is an unsignalized intersection with relatively low side street volumes; however, volume along Platte Canyon Rd at this location is high enough that there are infrequent gaps for traffic from the side street resulting in LOS E to LOS F conditions.

The Bowles Ave intersection experiences a high volume of intersecting traffic from both Platte Canyon Rd and Bowles Ave. As result, a few of the intersection movements are over-capacity, meaning that traffic demands exceed the intersections ability to process that demand.

Existing w/Project: This scenario includes the additional traffic from Wild Plum Farm, but assumes no changes to existing signal timings or physical improvements to the existing transportation system. Apart from the intersection of Platte Canyon Rd and Hunter Run Ln, very little changes with the addition of Wild Plum Farm traffic. At the Hunter Run Ln intersection, the LOS changes from C to D in the a.m. peak hour and from LOS B to LOS E in the p.m. peak hour. However, because side street volumes remain light, the 95th percentile queue lengths are less than one car length on average.

Otherwise, the addition of project traffic results in the 95th percentile queue lengths for other movements to increase by a car length or so on average.

Future (2034) Condition: For this scenario, no improvements were made to the existing transportation system; however, traffic signal timings were allowed to optimize. The LOS results indicate that growth in background traffic over time will understandably result in increased average delays at area intersections. In many cases, these delay increases result in changes to intersection LOS when compared to existing conditions. In the case of the Coal Mine Rd intersection, optimizing the existing signal timings resulted in improved operations when compared to existing conditions; generally suggesting that signal timing improvements would be beneficial to corridor traffic flow.

The queue length results indicate that at a couple of locations, queue lengths will exceed available storage. These include the northbound through movement at Coal Mine Rd, and the southbound left

turn movement at Mineral Ave. During the a.m. peak hour, the northbound queue at Coal Mine Rd will on occasion extend south past the intersection of Hunter Run Ln; making left turns to and from Hunter Run Ln more difficult to execute.

Future (2034) w/Project: For this scenario, no improvements were made to the existing transportation system; however, traffic signal timings were allowed to optimize. Apart from the intersection of Platte Canyon Rd and Hunter Run Ln, very little changes with the addition of Wild Plum Farm traffic. At the Hunter Run Ln intersection, the LOS changes from D to E in the A.M. and from LOS C to LOS F in the P.M. Peak. However, because volumes remain light, the 95th percentile queue lengths remain short - less than one car length on average for the westbound right turn lane and approximately 3 car lengths for the westbound left turn lane.

The queue length results indicate that the addition of project traffic results in the 95th percentile queue lengths for other movements to increase by a car length or two on average.

STATE HIGHWAY ACCESS CODE

As a state highway (SH 75B), access to Platte Canyon Rd is governed by the *State Highway Access Code* (SHAC). The purpose of the SHAC is to provide procedures and standards to aid in the management of the State of Colorado's investment in the highway system and to protect the public health, safety and welfare, to maintain smooth traffic flow, and to protect the functional level of state highways while considering state, regional, and local transportation needs and interests.

The Wild Plum Farm development will increase the volume of traffic accessing SH 75B by more than 20%, therefore in accordance with the SHAC an access permit application will be required. In this case, the Town of Columbine Valley will be the Permittee for the application.

State Highway 75B has an access category of Non-Rural Principal Highway (NR-A). For this category of roadway, the auxiliary lane warranting criteria are as shown in **Table 5**:

Table 5: State Highway Auxiliary Lane Criteria

Auxiliary Lane	Warrant Criteria (NR-A Access Category)	Status w/Project
Southbound Left Turn Deceleration Lane and Taper with Storage Length	More than 10 left turning vehicles per hour	Met
Northbound Right Turn Deceleration Lane and Taper	More than 25 right turning vehicles per hour	Met
Westbound Right Turn Acceleration Lane and Taper	More than 50 right turning vehicles per hour, and posted speed limit greater than 40 mph	Not Met
Westbound Left Turn Acceleration Lane	Where it would benefit the safety and operation of the roadway.	Not Met

A southbound left turn deceleration lane currently exists, although it does not meet the geometric design requirements of the SHAC. The existing lane is approximately 320-ft in length and consists of a 160-ft of taper and 160-ft of storage. SHAC requirements for a NR-A roadway and a 45 MPH posted speed are a total of 535-ft consisting of 435-ft of deceleration and 100-ft of storage. This length of lane would overlap with the existing left turn lane for Coal Mine Rd. Based on the queue length information provided previously, the storage length at Coal Mine Rd is more critical than is the storage for Hunter

Run Ln. For this reason, no changes to the existing lane striping is recommended. Because the SHAC design criteria is not met, a design waiver request will need to be included as part of the access permit application.

A northbound right turn lane does not currently exist; and in fact existing conditions make construction of a right turn lane problematic as it would likely require extensive right-of-way acquisition, relocation of an existing overhead utility, elimination of mature landscaping, and reconstruction of an existing brick privacy wall. It may also reduce the setback between the privacy wall and adjacent residence to a level unlikely to be acceptable to the homeowner. Based on the LOS results, a right turn deceleration lane would do little to improve traffic operations at the intersection. If a right turn lane is not provided, a design waiver request will need to be included as part of the access permit application.

ALTERNATE SCENARIO

Staff of the Town of Columbine Valley requested that the analysis also consider the following development scenario:

- 100 detached single-family residential dwelling units
- Access to Hunter Run Lane and Fairway Lane
- 65% split to Hunter Run and 35% to Fairway Lane

One hundred (100) dwelling units is approximately the number of units that are identified the Town's Master Plan.

Trip Generation

Table 6: Trip Generation (alternate scenario)

ITE Code	Land Use	Units		Weekday Rate[1]	AM Peak Rate[1]	AM Peak Entering %	AM Peak Exiting %	PM Peak Rate[1]	PM Peak Entering %	PM Peak Exiting %	Weekday Total Trips	AM Peak Trips Entering	AM Peak Trips Exiting	PM Peak Trips Entering	PM Peak Trips Exiting
210	Single-Family Detached Housing	100	D.U.	10.50	0.80	25%	75%	1.05	63%	37%	1050	20	60	66	39
[1] Rates calculated from Fitted Curve Equations															

The alternate scenario generates approximately 1,050 daily trip ends, which is a little more than half of the number of trips that would be generated by a 200 dwelling unit development.

Trip Distribution

Trips generated by the alternate scenario were distributed to Platte Canyon Rd from both Hunter Run Ln and Fairway Ln. This represents a change compared to the original scenario whereby all traffic except for the traffic to/from the east along Bowles Ave was assigned to the Hunter Run Ln access. For the original scenario, traffic to/from the east along Bowles Ave was assigned to Middlefield Rd via Fairway Ln.

Traffic Analysis

The following Table provides a summary of the intersection LOS for the Alternate Scenario, as well as a comparison to the original scenario with 200 dwelling units:

Table 7: Level-of-Service Comparison for Original Scenario versus Alternate Scenario

Intersection	Original Scenario (200 dus)				Alternate Scenario (100 dus)			
	Existing w/Project		Future (2034) w/Project		Existing w/Project		Future (2034) w/Project	
	AM	PM	AM	PM	AM	PM	AM	PM
S Platte Canyon / W Mineral Ave	D	C	F	D	D	C	F	D
S Platte Canyon / Hunter Run Ln	D	E	E	F	C	D	E	F
S Platte Canyon / Coal Mine / Doral Ln	F	D	E	E	F	D	E	E
S Platte Canyon / Fairway Ln	B	A	D	B	B	A	D	B
S Platte Canyon / Village Ct	F	F	F	F	F	F	F	F
S Platte Canyon / W Bowles Ave	E	E	F	E	E	E	F	E
W Bowles Ave / Middlefield	B	B	C	B	B	B	B	B

As Table 7 shows, the alternate scenario generally has LOS results that are comparable to the original scenario. The location realizing the most benefit is the intersection of S Platte Canyon & Hunter Run Lane which would function at one LOS letter grade better than the alternate scenario in the near term with project.

Table 8: Queue Length Comparison for Original Scenario versus Alternate Scenario

Intersection	Movement	Original Scenario (200 dus)				Alternate Scenario (100 dus)			
		Existing w/Project		Future w/Project		Existing w/Project		Future w/Project	
		AM	PM	AM	PM	AM	PM	AM	PM
S Platte Canyon / W Mineral Ave	EB Left	92	65	173	#208	91	61	172	#213
	SB Left	#308	#250	#581	#381	298#	#239	#571	#354
S Platte Canyon / Hunter Run Ln	WB Left	15	21	32	74	6	6	12	26
	WB Right	9	6	14	8	7	5	10	6
	SB Left	2	5	2	6	1	4	2	4
S Platte Canyon / Coal Mine / Doral Ln	NB Left	48	148	54	#248	45	145	53	#253
	NB Thru	545	334	#1081	336	538	336	#1085	326
W Bowles Ave / Middlefield Rd	WB Left	41	34	#88	19	31	22	49	16
	NB Thru/Left	28	53	39	57	28	53	41	57
	NB Right	49	49	143	62	43	43	98	46
#95th Percentile volume exceeds capacity, queue may be longer									

Table 8 reveals that the alternate scenario generally results in a shorter left turn queue for westbound Hunter Run Lane at S Platte Canyon Road, but that queues at other locations are similar for the two scenarios.

The following provides a summary of the LOS and queue length findings for each analysis scenario:

Existing w/Alternate Scenario: This scenario includes the additional traffic from Wild Plum Farm, but assumes no changes to existing signal timings or physical improvements to the existing transportation system. Apart from the intersection of Platte Canyon Rd and Hunter Run Ln, very little changes compared to the original scenario of 200 dwelling units. At the Hunter Run Ln intersection, the LOS and queue lengths are improved compared to the higher density scenario.

Future (2034) w/Alternate Scenario: For this scenario, no improvements were made to the existing transportation system; however, traffic signal timings were allowed to optimize. Apart from the intersection of Platte Canyon Rd and Hunter Run Ln, very little changes with the addition of Wild Plum Farm traffic. At the Hunter Run Ln intersection, queue lengths for the westbound left turn movement are 1 to 2 car lengths shorter on average.

State Highway Access Code

Table 9 summarizes the auxiliary lane warranting criteria for the Alternate Scenario:

Table 9: State Highway Auxiliary Lane Criteria (Alternate Scenario)

Auxiliary Lane	Warrant Criteria (NR-A Access Category)	Status w/Project	
		Hunter Run Ln	Fairway Ln
Southbound Left Turn Deceleration Lane and Taper with Storage Length	More than 10 left turning vehicles per hour	Met	Met
Northbound Right Turn Deceleration Lane and Taper	More than 25 right turning vehicles per hour	Not Met	Met
Westbound Right Turn Acceleration Lane and Taper	More than 50 right turning vehicles per hour, and posted speed limit greater than 40 mph	Not Met	Not Met
Westbound Left Turn Acceleration Lane	Where it would benefit the safety and operation of the roadway.	Not Met	Not Met

For the Alternate Scenario, all of the warranted auxiliary lanes currently exist; however, the geometry is substandard.

FINDINGS

The following summarizes the findings of the traffic impact study conducted for Wild Plum Farm:

1. Two hundred (200) residential dwelling units generate approximately 1,990 vehicle trips per day, including approximately 149 and 197 trips during the weekday a.m. and p.m. peak hours, respectively. By comparison, a one hundred (100) dwelling unit scenario generates 1,050 weekday daily, 80 weekday a.m., and 105 weekday p.m. trips.
2. The characteristics of Hunter Run Ln make it an appropriate access to Wild Plum Farm: it is an underutilized access to Platte Canyon Rd; it functions as a collector roadway with few properties that directly access the roadway; and its proximity to Platte Canyon Rd minimizes out-of-direction travel and related impacts on neighboring properties. Fairway Ln and Middlefield Rd, other collector roadways in the Town, provide secondary access to the site as well as primary access for traffic to/from the east on Bowles Ave.
3. As a state highway, Platte Canyon Rd is under the jurisdiction of the Colorado Department of Transportation (CDOT). Wild Plum Farm will increase the volume of traffic accessing the highway at Hunter Run Ln by more than 20%, therefore a State Highway Access Permit will be necessary. The alternate scenario also distributes traffic to Platte Canyon Rd via Fairway Ln – resulting in the need for an access permit at that location as well.
4. The intersection of Platte Canyon Rd and Hunter Run Ln warrants a southbound left turn deceleration lane upon development of Wild Plum Farm. The existing southbound left turn lane does not meet current CDOT standards for a roadway with a NR-A access category. Platte Canyon Rd could be restriped to provide a longer deceleration lane; however this would impact the northbound left-turn lane for Coal Mine Rd which is a much more critical movement to overall traffic flow through the corridor. The study has concluded that vehicle queues for the southbound left turn movement will typically be one car length or less. For these reasons, no changes to existing left turn striping along Platte Canyon Rd is recommended.
5. The intersection of Platte Canyon Rd and Hunter Run Ln warrants a northbound right turn deceleration lane upon development of a 200-unit residential development (would not be warranted with a 100-unit development). Construction of a northbound right turn lane may result in substantial impacts to the adjacent property, including the need for property acquisition, utility relocation, elimination of mature landscaping, and reconstruction of a brick privacy fence. Proximity of the relocated fence to the residence would likely be unacceptable. The addition of the northbound right turn lane will do little to improve operations of the intersection and for this reason is not recommended.
6. Minor improvements to the Hunter Run Ln approach to Platte Canyon Rd are recommended to provide additional storage for left turning vehicles (approximately 100-ft of storage is required).
7. The study has concluded that the potential traffic impacts of the Wild Plum Farm development can be addressed by the transportation improvements outlined in this report.