

OLD TOWN TRAFFIC STUDY

Prepared by

**ALBERT
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ASSOCIATES**

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May 17, 2018

Mr. Brian Gengler, PE
City Engineer
City of Victorville
14343 Civic Drive
Victorville, California 92393

RE: Old Town Traffic Study

Dear Mr. Gengler:

Albert Grover & Associates (AGA) is pleased to present to the City of Victorville this traffic study for the Old Town, in anticipation of a potential commercial and residential revitalization and redevelopment of the area.

The purpose of this study is to assess existing conditions within Old Town as well as anticipate future growth and determine if traffic mitigation measures would be necessary. To do so, we have evaluated traffic, pedestrian, transit, and cyclist conditions throughout the Old Town roadway network, including traffic volumes, anticipated future growth, and recorded incidents. The following report gives our findings as well as several recommended infrastructure improvement opportunities for the City to consider.

Should you have any questions regarding this study or its conclusions, please do not hesitate to give me or Kawai Mang a call at (714) 992-2990.

Respectfully submitted,

ALBERT GROVER & ASSOCIATES

A handwritten signature in blue ink, appearing to read 'David Roseman', is positioned below the company name.

David Roseman, TE
Principal Transportation Engineer

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I. Introduction

The City of Victorville is in the process of updating its Old Town Specific Plan, particularly in anticipation of a commercial and residential revitalization of the Old Town area (**Figure 1**). Accordingly, this traffic study has been prepared to assess existing traffic conditions in Old Town and to provide insight into possible future traffic conditions should various levels of revitalization and growth occur in the coming years.



Figure 1: Study Area

Old Town Victorville lies in the mid-eastern part of the City of Victorville just south of the Mojave River and west of Apple Valley. Old Town Victorville has a traditional gridded street network oriented with northeast/southwest streets parallel to D Street and southeast/northwest streets parallel to 7th Street. Old Town is home to a transportation center, hospital, schools, and historic sites. Commercial businesses are clustered along the D Street and 7th Street corridors with single family and multi-family residential homes scattered throughout the area. Auto-related businesses are the primary commercial enterprise; however, many of the commercial buildings are vacant and there are numerous empty lots.

Study Intersections

The traffic study analyzes traffic operations at the following intersections (**Figure 2**):

1. D Street at 4th Street – traffic signal
2. D Street at 6th Street – two-way stop
3. D Street at 7th Street – traffic signal
4. D Street at Hesperia Road – T-intersection, traffic signal
5. D Street at 11th Street – T-intersection, one-way stop
6. D Street / CA-18 at Stoddard Wells Road – T-intersection, traffic signal
7. 7th Street at B Street – traffic signal
8. 6th Street at Forrest Avenue – all-way stop
9. 7th Street at Forrest Avenue – traffic signal
10. Hesperia Road at Forrest Avenue – T-intersection, one-way stop
11. 7th Street at Mojave Drive – traffic signal



Figure 2: Study Intersections



Study Scenarios

The operational performance of each of the study intersections will be analyzed under the following four scenarios:

- Existing Conditions (existing traffic volumes and intersection geometrics)
- Near-Term Future Conditions (2025)
- Long-Term Future Conditions (2040)
- Long-Term Future Conditions (2040) with recommended improvements

Intersection Analysis Methodology

Intersection operational analysis was conducted for the study intersections under the study scenarios via Synchro software, which describes traffic conditions at intersections with level-of-service (LOS) rankings. The intersection LOS and vehicle delay analyses utilize the Transportation Research Board's *Highway Capacity Manual* (2010) criteria for both signalized and unsignalized intersections, which assigns intersection LOS rankings from A to F based on average control delay per vehicle (**Tables 1 and 2**). For signalized intersections and all-way stop locations, LOS calculation is based on the average delay for all vehicles at the intersection. For side-street stop locations, LOS calculation is based on the worst-case—or most-delayed—approach.

As per the Circulation Element of the City of Victorville General Plan, the City considers LOS D or better to be acceptable traffic operations at intersections.

Table 1: Signalized LOS by Delay
Highway Capacity Manual (2010)

Average Delay per Vehicle	LOS	Description
0 - 10	A	Free flow
10 - 20	B	Stable flow (slight delay)
20 - 35	C	Stable flow (acceptable delay)
35 - 55	D	Approaching unstable flow (tolerable delay)
55 - 80	E	Unstable flow
80 +	F	Forced flow



Table 2: Unsignalized LOS by Delay
Highway Capacity Manual (2010)

Average Delay per Vehicle	LOS	Description
0 - 10	A	Usually no conflicting traffic
10 - 15	B	Occasionally some delay
15 - 25	C	Delay noticeable, but not inconveniencing
25 - 35	D	Delay noticeable and irritating
35 - 50	E	Delay approaches tolerance level
50 +	F	Delay exceeds tolerance level

DRAFT



II. Existing Conditions

The City of Victorville is located along the I-15 freeway in San Bernardino County's Mojave Desert region, approximately 30 miles north of the City of San Bernardino. Victorville is bordered by the City of Adelanto to the west, the Town of Apple Valley to the east, and the City of Hesperia to the south. The Old Town area of Victorville is located in the eastern region of the City, east of the I-15 freeway and south of the Mojave River. Regional access to Old Town is provided via I-15, US-66, and CA-18, while local access to Old Town is provided primarily via D Street, 7th Street, and Hesperia Road. In fact, a grid network oriented to D Street and 7th Street spans the area, with most blocks having a mid-block service alley way. Various historic features, including Historic Route 66 and the Route 66 Museum as well as the Old Victor School, are part of Old Town, lending it a unique flavor.

The 7th Street corridor in the heart of Old Town Victorville is lined with retail developments, many of which are currently vacant. It is also noted that a majority of businesses currently operating in Old Town are automobile-oriented establishments, including businesses related to auto parts, service, and sales alike. In addition, the University Preparatory School site, formerly Victor Valley Junior High, is also currently vacant. The Old Town area currently experiences a high volume of pass-through traffic along its major corridors, especially 7th Street and D Street, as motorists pass through the area between the I-15 freeway and Apple Valley. This combination of vacant buildings and pass-through traffic contributes to an environment that is less than conducive to pedestrians, leisure, and tourism.

Existing Roadway Network

The roadway network of Old Town Victorville consists of a grid network oriented around two intersecting corridors: D Street and 7th Street. For the purposes of this study, D Street and parallel roadways are considered east-west, while 7th Street and parallel roadways are considered north-south. All streets within Old Town are owned and operated by the City of Victorville except for D Street which is a State highway owned and operated by Caltrans. The City of Victorville has no operational authority over D Street; therefore, any changes to the roadway layout, traffic and parking controls, or street amenities the City may wish to implement on D Street requires concurrence from Caltrans.

D Street is a four-lane arterial roadway that provides access to the I-15 freeway, about one mile to the west of the study area. East of Old Town, D Street becomes California State Route 18 (CA-18) providing primary access to the Town of Apple Valley. As such, it experiences heavy pass-through traffic comprised mainly of Apple Valley and Victorville residents headed to and from the I-15 freeway. With two lanes of through traffic in each direction, it also provides a two-way left-turn center lane with dedicated left-turn pockets at intersections. Within the study area, D Street / CA-18 is also part of Historic Route US-66. Existing businesses and services on D Street include the Victor Valley Transportation Center, Route 66 Museum, and many automobile-related establishments.

7th Street is a four-lane arterial roadway that passes through and forms the heart of the Old Town commercial area. It terminates to the north at D Street and provides access southward to central Victorville



and eventually the I-15 freeway. Within the Old Town area, intersections along 7th Street feature narrow side streets and brick-paved crosswalks. Existing development along 7th Street in Old Town features storefronts set back from the curbside, most of them currently vacant.

Pedestrian and Bicyclist Network

Most streets in the commercial areas of Old Town are equipped with pedestrian sidewalks and access ramps, except in limited areas where adjacent land is undeveloped. There are many residential blocks with a lack of continuous sidewalks, or accessible pedestrian paths of travel. There are very few marked crosswalks and access ramps in residential areas; however, most intersections are equipped with stop controls to clearly assign right-of-way. All the traffic signals in the Old Town area are equipped with crosswalks at pedestrian indications to facilitate the safe and orderly movement of pedestrians and cyclists. The 7th Street central corridor was upgraded in the mid 1990’s with wide sidewalks and landscaping, creating a comfortable pedestrian walking environment for area residents and business patrons alike.

There are currently no designated on-street bike lanes in Old Town. However, per the Victorville Non-Motorized Transportation Plan (NMTP, **Figure 3**), Class 2 bicycle lanes are planned along Forrest Avenue, 4th Street, Hesperia Road, and D Street. The Mojave River Trail, an existing Class 1 bicycle trail (solid red line), is also planned to be expanded (dashed red line) along the Mojave River to the southeast. A regional connection between the Class 1 and Class 2 bicycle facilities is also planned at the intersection of D Street and Hesperia Road (blue asterisk).

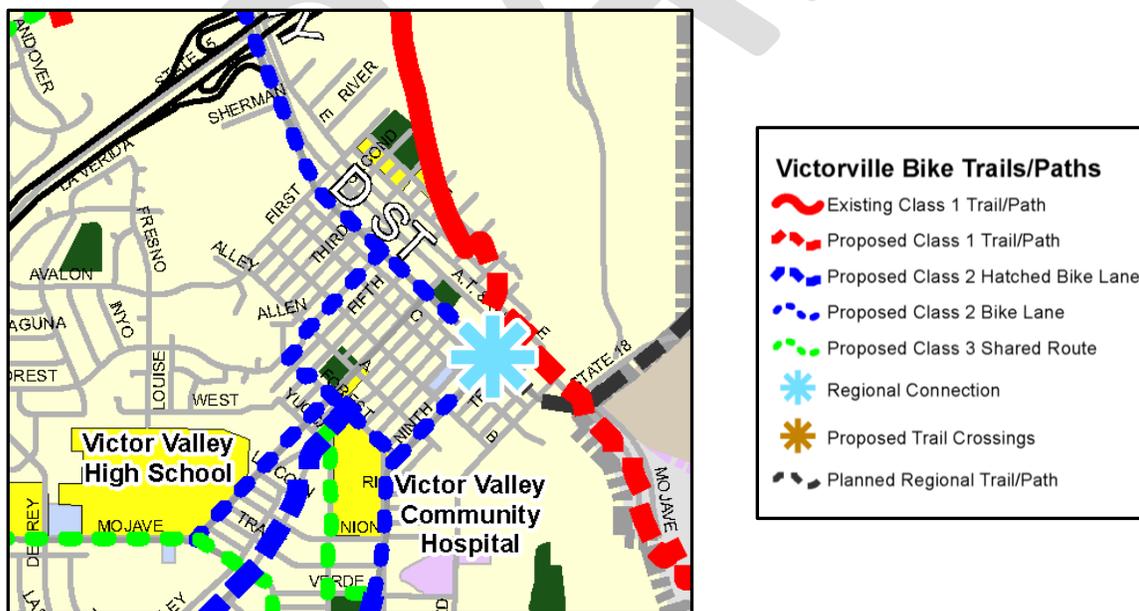


Figure 3: City of Victorville Non-motorized Transportation Plan (excerpt)

Transit Services

The Amtrak Southwest Chief route runs through Old Town Victorville, with a stop at the Victor Valley Transportation Center, located at the intersection of 6th and D Streets. An at-grade railroad crossing for these railroad tracks—owned by Burlington Northern Santa Fe (BNSF) Railway—is along 6th Street between D Street and E Street.

The City of Victorville is served by the Victor Valley Transit Authority, which operates various local and regional passenger bus lines, including the following routes within the study area (**Figure 4**):

Route 15 (yellow) provides access to Barstow to the north via CA-18 and Stoddard Wells Road as well as San Bernardino to the south via D Street and Hesperia Road. Service to Barstow operates four round-trips daily, while service to San Bernardino operates throughout the day every two hours on weekdays and every three hours on Saturdays.

Route 22 (orange) provides access to Silver Lakes and Helendale to the north and northwest via D Street / CA-18, B Street, 7th Street, 4th Street, and Stoddard Wells Road. Service operates approximately every two hours throughout the day, seven days a week.

Route 41 (purple) provides access to Apple Valley to the east via D Street, 7th Street, and 4th Street. Service operates every half-hour on weekdays and every hour in the evenings and weekends.

Route 51 (green), the Victorville Circulator, provides access to the rest of the City of Victorville via B Street and 11th Street. Service operates approximately every hour throughout the day, seven days a week.

The **NTC Commuter** (red) provides access specifically for commuters to and from the Fort Irwin National Training Center, travelling along D Street between the I-15 freeway and the Victor Valley Transportation Center during the weekday commute hours only.

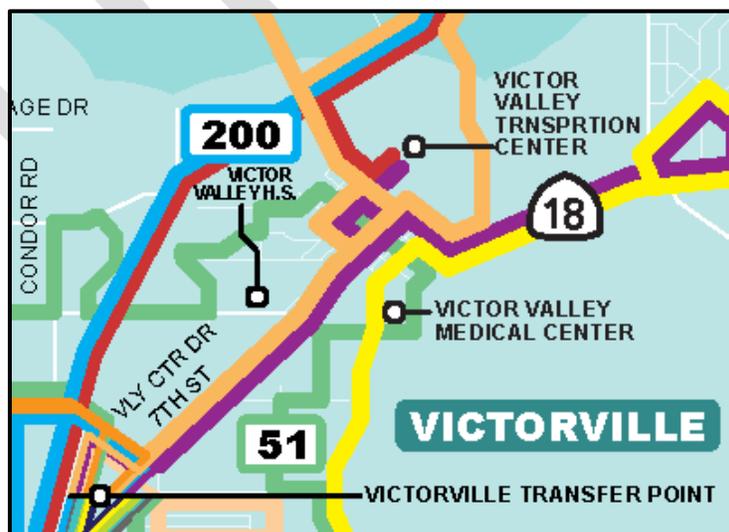


Figure 4: VVTA Route Map (excerpt)



Existing Traffic Volumes

In order to better assess existing traffic conditions within the study area, traffic volume data was collected and is provided in **Attachment A**. Automatic machine 24-hour traffic volume counts were collected on Tuesday, May 9, 2017, at the following locations:

- D Street between 6th Street and 7th Street
- D Street between 10th Street and 11th Street
- Stoddard Wells Road north of D Street
- Hesperia Road between B Street and C Street
- 7th Street between B Street and C Street
- 7th Street north of Mojave Drive

Intersection turning movement traffic count data was collected at the 11 study intersections on Wednesday, June 21, 2017, for the following time periods:

- AM peak period (morning commute) – 7:00 to 9:00 am
- PM peak period (evening commute) – 3:30 to 6:00 pm

Table 3 summarizes the 24-hour traffic volumes for Old Town arterial streets, by direction as well as by total roadway segment. At more than 35,000 vehicles per day, D Street carries twice the volume of traffic of any other street in Old Town. This high volume of traffic can be attributable to commuter traffic traveling to/from the I-15 freeway and to/from Apple Valley. At just less than 18,000 vehicles per day, 7th Street is the second highest volume arterial traversing Old Town, providing a direct connection from D Street to the commercial center of the City.

Table 3: 24-Hour Roadway Traffic Volumes

Roadway	Location	Northbound/ Eastbound	Southbound/ Westbound	Total
<i>D Street</i>	6th St - 7th St	12,714	9,531	22,245
	10th St - 11th St	18,306	17,407	35,713
<i>Stoddard Wells Road</i>	n/o D St	4,988	9,159	14,147
<i>7th Street</i>	B St - C St	7,255	6,340	13,595
	n/o Mojave Dr	8,620	8,796	17,416
<i>Hesperia Road</i>	B St - C St	6,125	5,414	11,539

Data collected Tuesday, May 9, 2017



Existing Intersection Analysis

In order to better understand existing traffic conditions in Old Town, a Level of Service (LOS) analysis was conducted using the gathered traffic volumes, intersection geometrics, and traffic signal timing parameters. A sophisticated traffic simulation model, Synchro 8, was used to model traffic flow during the morning and evening peak travel periods on the major streets in Old Town and to analyze intersection performance for the eleven study intersections. The LOS methodology used in the analysis can be found in the Transportation Research Board's *2010 Highway Capacity Manual*. **Table 4** provides a summary of this modeling effort for each of the eleven study intersections. Detailed worksheets for each analysis time period are included in **Attachment B**.

As outlined below, each of the study intersections are currently operating at LOS C or better during both the morning and evening peak periods. Per the General Plan, this level of intersection performance is considered acceptable. It is interesting to note that despite the high volume of traffic on D Street, that intersection performance, or LOS, was good during the peak periods. This is primarily due to the existence of turn pockets on D Street and the traffic signal timing that provides a significant amount of green time for through traffic on D Street.

Table 4: Existing Conditions Analysis (2017)

	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	D St @ 4th St	Traffic Signal	2.4	A	4.9	A
2	D St @ 6th St	Two-Way Stop	13.7	B	17.6	C
3	D St @ 7th St	Traffic Signal	17.8	B	18.1	B
4	D St @ Hesperia Rd	Traffic Signal	11.9	B	15.4	B
5	D St @ 11th St	Side-Street Stop	10.6	B	10.9	B
6	D St / CA-18 @ Stoddard Wells Rd	Traffic Signal	8.6	A	18.6	B
7	7th St @ B St	Traffic Signal	3.6	A	4.1	A
8	6th St @ Forrest Ave	All-Way Stop	7.6	A	8.1	A
9	7th St @ Forrest Ave	Traffic Signal	8.3	A	6.6	A
10	Hesperia Rd @ Forrest Ave	Side-Street Stop	10.8	B	11.4	B
11	7th St @ Mojave Dr	Traffic Signal	30.7	C	31.2	C



Collision History Analysis

Four years of historical collision data was obtained from the Statewide Integrated Traffic Records System (SWITRS) for the eleven study intersections (Table 5). Within the study area, the intersection of D Street / CA-18 and Stoddard Wells Road had the highest average annual rate of collisions, with thirty-six recorded collisions in four years, or about nine collisions per year. In contrast, the remaining intersections averaged less than three collisions per year, which is considered below expected rates considering the amount of traffic traversing those intersections daily.

Table 5: Collision History

Location		Number of Collisions				4-Year Total	Annual Average	
		2014	2015	2016	2017			
Intersections	1	D St @ 4th St					-	-
	2	D St @ 6th St			3	5	8	2.0
	3	D St @ 7th St	6	3	1	1	11	2.8
	4	D St @ Hesperia Rd	1	4	3		8	2.0
	5	D St @ 11th St	1		3	1	5	1.3
	6	D St / CA-18 @ Stoddard Wells Rd	7	10	12	7	36	9.0
	7	7th St @ B St	3		3	3	9	2.3
	8	6th St @ Forrest Ave			1		1	0.3
	9	7th St @ Forrest Ave	4	2		2	8	2.0
	10	Hesperia Rd @ Forrest Ave				2	2	0.5
	11	7th St @ Mojave Dr	1	1	3	3	8	2.0
		<i>Subtotal</i>	23	20	29	24	72	18.0
Roadway Segments	1	7th Street	9	3	4	9	25	6.3
	2	D Street	21	20	28	16	85	21.3
		<i>Subtotal</i>	30	24	33	29	116	29.0
Old Town Total			53	44	62	53	212	53.0



III. Projected Future Traffic

In order to assess expected future traffic conditions as the Old Town area grows, traffic growth projections were derived for both potential revitalization and ambient area growth. These projections were compared to the San Bernardino County Transportation Authority's regional San Bernardino Transportation Analysis Model for appropriateness and consistency.

Ambient Traffic Growth

For the 2025 near-term horizon, a 4% ambient areawide traffic growth rate over the existing traffic conditions was assumed. For the 2040 long-term horizon, a 15% ambient areawide traffic growth rate was assumed. These growth rates are approximations based on an assumed annual ambient areawide traffic growth, sensibly adjusted over time to account for natural fluctuations in the economy and population over time.

Re-occupied Existing Commercial Space

Currently, many of the existing commercial buildings along the key commercial corridors of 7th Street and D Street are vacant. It is estimated that the existing commercial space comprises approximately 750,000 square feet of vacant space. To provide a reference a typical new grocery store is slightly less than 50,000 square feet and a typical new home center store is around 100,000 square feet. It is anticipated with an aggressive revitalization plan for Old Town that the existing vacant commercial space could be 60% re-occupied by 2025, or about 450,000 square feet of commercial use over existing conditions. By 2040, it is expected that the existing commercial space would be about 85% re-occupied, or a total of about 600,000 square feet of commercial use over existing conditions. For the purposes of this study, the revitalized commercial space is estimated to generate one vehicle trip per 1,000 square feet in the morning peak hour and 3.5 vehicle trips per 1,000 square feet in the evening peak hour. This trip generation rate is generally consistent with the shopping center land use type as outlined in the Institute of Transportation Engineer's *Trip Generation Manual*.

New Commercial Space

In addition to the re-occupation of existing commercial space, it is anticipated that the Old Town area would also experience the development of new commercial, retail, restaurant, and service businesses. By the year 2025, it is anticipated that about 125,000 square feet of new commercial development could be constructed and occupied. By 2040, that figure is anticipated to be approximately 600,000 square feet. Similar to the re-occupied commercial space, these new developments are estimated to generate about one vehicle trip per 1,000 square feet in the morning peak hour and about 3.5 vehicle trips per 1,000 square feet in the evening peak hour.



New Residential Development

Along with the commercial revitalization and growth, it is expected that residential development would also occur in Old Town. This study estimates that by 2025, approximately 250 new dwelling units could be built and occupied. By 2040, it is anticipated that an additional 500 homes could be developed, for a total of 750 new dwelling units over the current residential units. These new residential developments are estimated to generate about 0.75 peak-hour vehicle trips per dwelling unit during both the morning and evening peak hours. This trip generation rate is again consistent with a mix of residential unit types as outlined in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual*.

University Preparatory School Site

The University Preparatory School Site, bounded by Forrest Avenue to the north, 7th Street to the west, Hesperia Road to the east, and Union Street to the south, is currently vacant. It is unknown what the future holds for the site. Should significant residential growth in the area take place, it could be re-instated as a school or for some other educational or institutional use. Alternatively, the site could be sold into private ownership and be redeveloped. In order to be conservative in the analysis it was assumed that some level of re-occupation of the site would occur by 2025 (up to 50%) and that that the site would be fully occupied by 2040. Based on the size of the site, full occupation of the site was estimated to generate 250 vehicle trips in the morning peak hour and 350 vehicle trips in evening peak hour.



IV. Near-Term Future Conditions (2025)

Anticipated Growth

This study anticipates the following growth for the Year 2025 near-term future traffic analysis:

- 450,000 square feet of re-occupied commercial space
- 125,000 square feet of new commercial development
- 250 new residences
- University Preparatory School site operating at 50%
- 4% ambient area growth over existing conditions

The above noted changes in land use is expected to result in a total of 888 additional vehicle trips in the morning peak hour and 2,376 additional vehicle trips in the evening peak hour (**Table 6**). Although two thousand plus additional trips in the evening peak hour may seem high, these trips include both inbound and outbound trips that are spread out across the entire street network. To provide a frame of reference for these trip numbers, it is commonly understood by traffic engineers that one lane of continuous moving traffic amounts to approximately 2,000 vehicles per hour. Therefore, the anticipated growth in Old Town traffic by 2025 as outlined by the Specific Plan amounts to a little more than one lane of additional traffic spread across the entire street network.

Table 6: Year 2025 Near-Term Trip Generation

Generator	Units ¹	AM Peak Hour		PM Peak Hour	
		Rate	Trips	Rate	Trips
<i>Re-occupied commercial space</i>	450,000 SF	0.001	450	0.0035	1,575
<i>New commercial space</i>	125,000 SF	0.001	125	0.0035	438
<i>New housing</i>	250 DU	0.75	188	0.75	188
<i>University Preparatory School</i>	50% capacity		125		175
Total new trips:		888		2,376	
Ambient area growth:		4%	(applied to all existing volumes)		

¹ SF - square feet; DU - dwelling unit



Planned Roadway Improvements

In order to facilitate the revitalization of the 7th Street commercial corridor, a “road diet” is planned for 7th Street within the study area. This “road diet” would reduce the number of travel lanes from two per direction to one per direction, with on-street parking, pedestrian bulb outs, and a center median that opens up to provide left-turn pockets at key intersections. Alternatively, the City may choose to provide on-street angled parking on one side of the street or the other, or bike lanes, by narrowing the sidewalks. Regardless of the “road diet” alternative selected by the City, the resulting number of traffic lanes and thus the vehicle throughput, is assumed to be the same.

It is further noted that the traffic improvement project currently underway at the I-15 freeway interchange at D Street is planned to be completed by 2025. This major freeway improvement project improving freeway access ramps, will facilitate traffic headed to and from the freeway along D Street.

It should also be noted that the Green Tree Boulevard extension project providing a new connection between the City of Victorville and Apple Valley in the center of the City is anticipated to significantly improve traffic flow in the southern portion of the City.

The San Bernardino Transportation Analysis Model (SBTAM) was used to assess impacts of the I-15 improvements and the Green Tree Boulevard extension on traffic in Old Town and specifically D Street. SBTAM model runs are included in **Appendix C**. What was discovered was that although traffic along 7th Street increased with ambient growth, traffic along D Street remained relatively stable over time only increasing slightly. Although some existing D Street traffic was diverted from D Street to Green Tree Boulevard, that loss of traffic was replaced by increased traffic from the I-15 interchange improvements and growth in areas to the north of Old Town.

Near-Term Future Conditions Intersection Analysis

In order to better understand the impact of the anticipated additional trips on Old Town’s roadway network, a LOS analysis was conducted using a sophisticated traffic simulation model. Traffic engineers took the anticipated traffic growth for 2025 and distributed those trips across the roadway network roughly based on current travel patterns adjusting for traffic balancing and typical driver behavior. The distributed trips were then added to the existing traffic flows plus the ambient traffic growth of 4% and those higher traffic volume numbers were entered into the model for analysis. Based on those expected higher traffic volumes and anticipated roadway improvements the model was then balanced and optimized. Based on the modeling analysis, it is anticipated that all study intersections within Old Town will operate at LOS C or better in the morning peak hour and at LOS D or better in the evening peak hour. In other words, the model predicts that the existing roadway network along with the 7th Street “road diet” and regional improvement projects are sufficient to accommodate the anticipated 2025 traffic demands outlined in the near-term future growth scenario. **Table 7** summarizes the expected LOS for each of the study intersections under the 2025 near-term analysis scenario.



Table 7: Near-Term Future Conditions Analysis (2025)

	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	D St @ 4th St	Traffic Signal	4.4	A	10.4	B
2	D St @ 6th St	Two-Way Stop	15.7	C	33.8	D
3	D St @ 7th St	Traffic Signal	18.2	B	37.0	D
4	D St @ Hesperia Rd	Traffic Signal	13.6	B	26.6	C
5	D St @ 11th St	Side-Street Stop	10.7	B	24.6	C
6	D St / CA-18 @ Stoddard Wells Rd	Traffic Signal	10.1	B	26.2	C
7	7th St @ B St	Traffic Signal	7.7	A	19.4	B
8	6th St @ Forrest Ave	All-Way Stop	8.2	A	10.6	B
9	7th St @ Forrest Ave	Traffic Signal	10.9	B	10.7	B
10	Hesperia Rd @ Forrest Ave	Side-Street Stop	12.2	B	17.2	C
11	7th St @ Mojave Dr	Traffic Signal	31.7	C	35.4	D



V. Long-Term Future Conditions (2040)

Anticipated Growth

This study anticipates the following growth for the Year 2040 long-term future analysis:

- 600,000 square feet of re-occupied commercial space
- 600,000 square feet of new commercial development
- 750 new residences
- University Preparatory School site operating at 100%
- 15% ambient area growth over existing conditions

The above noted changes in land use is expected to result in a total of 2,013 additional vehicle trips in the morning peak hour and 5,113 additional vehicle trips in the evening peak hour (**Table 8**). This level of growth, should it be attained, would transform Old Town into a bustling commercial and residential center for the City. It is envisioned that streets would be active with people, on-street parking would be mostly occupied during business hours, and peak period traffic would be brisk with occasional spot locations of congestion. It is unlikely that this level of growth could be attained without additional investments in infrastructure improvements.

Table 8: Year 2040 Long-Term Trip Generation

Generator	Units ¹	AM Peak Hour		PM Peak Hour	
		Rate	Trips	Rate	Trips
<i>Re-occupied commercial space</i>	600,000 SF	0.001	600	0.0035	2,100
<i>New commercial space</i>	600,000 SF	0.001	600	0.0035	2,100
<i>New housing</i>	750 DU	0.75	563	0.75	563
<i>University Preparatory School</i>	100% capacity		250		350
Total new trips:		2,013		5,113	
Ambient area growth: 15%		(applied to all existing volumes)			

¹ SF - square feet; DU - dwelling unit



Long-Term Future Conditions Intersection Analysis

It is anticipated that the level of growth outlined for 2040 would create significant traffic impacts in Old Town, specifically along its two key arterials of D Street and 7th Street. Those traffic impacts could lead to significant increases in vehicle delay, or congestion, at many of the study intersections along key entrance and exit routes of Old Town. The mixed-use residential and commercial growth strategy for Old Town will help mitigate traffic impacts since some residents will choose to live and work in Old Town; however, it is unlikely that Old Town's traffic growth will be contained within itself. A vibrant Old Town will attract others outside of Old Town to visit, shop, and dine; while most Old Town residents will likely work elsewhere and become commuters out of Old Town in the morning and into Old Town in the evening.

With thousands of additional vehicles expected to traverse Old Town streets during the peak periods, traffic congestion and vehicle delays will be norm unless a comprehensive improvement strategy is developed to mitigate the impacts of growth. In order to better understand the impact of the anticipated additional trips on Old Town's roadway network, a LOS analysis was conducted using a sophisticated traffic simulation model. Traffic engineers took the anticipated traffic growth for 2040 and distributed those trips across the 2025 roadway network roughly based on current travel patterns adjusting for traffic balancing and typical driver behavior. The distributed trips were then added to the existing traffic flows plus the ambient traffic growth of 15% and those higher traffic volume numbers were entered into the model for analysis. Based on those expected higher traffic volumes the model was then balanced and optimized. Based on the modeling analysis, it is anticipated that without a comprehensive traffic mitigation strategy for Old Town that eight of the eleven study intersections will operate at LOS E or F, which is essentially a failing grade, in the evening peak hour. The model does predict acceptable traffic operations during the morning peak when typically, many retail and restaurants are slow or closed; however, during the evening peak period a bustling Old Town will create significant traffic congestion especially along D Street and 7th Street as commute traffic struggles to traverse Old Town streets. The results of the model 2040 long-term future condition analysis for each of the study intersections are summarized in **Table 9**.



Table 9: Future Buildout Analysis (2040)

	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	D St @ 4th St	Traffic Signal	7.6	A	19.5	B
2	D St @ 6th St	Two-Way Stop	19.7	C	127.1	F
3	D St @ 7th St	Traffic Signal	26.6	C	126.7	F
4	D St @ Hesperia Rd	Traffic Signal	17.7	B	81.0	F
5	D St @ 11th St	Side-Street Stop	11.2	B	422.9	F
6	D St / CA-18 @ Stoddard Wells Rd	Traffic Signal	14.2	B	89.8	F
7	7th St @ B St	Traffic Signal	14.7	B	212.3	F
8	6th St @ Forrest Ave	All-Way Stop	9.3	A	27.2	D
9	7th St @ Forrest Ave	Traffic Signal	13.8	B	23.5	C
10	Hesperia Rd @ Forrest Ave	Side-Street Stop	15.1	C	67.4	F
11	7th St @ Mojave Dr	Traffic Signal	33.7	C	64.0	E



VI. Recommended Improvements

In order to mitigate the impact of the traffic issues identified in the 2040 modeling analysis, a comprehensive transportation improvement plan is needed. Working with the model in an iterative fashion, traffic engineers developed and tested multiple traffic improvement possibilities to arrive at a comprehensive mitigation strategy expected to address each of the identified traffic impacts in the 2040 model. Since the “road diet” strategy is thought to be integral to the Old Town revitalization effort, traffic engineers set out to determine if a set of improvements could be developed that would not require adding travel lanes back to 7th Street. Ultimately, a traffic mitigation strategy of spreading traffic demand within Old Town to parallel corridors and improving access to D Street at Hesperia Road, 11th Street, and 4th Street with right-turn arrows, limited roadway widening, and new traffic signals was successful in mitigating the significant traffic impacts. The specifics of this improvement strategy are outlined below, with conceptual improvement diagrams included in **Appendix D**.

D Street at 4th Street

The D Street and 4th Street signalized intersection provides direct access into and out of the Victor Valley Transportation Center. To improve responsiveness of the traffic signal and reduce delays for motorists on 4th Street, it is recommended that east curb of 4th Street be widened to provide two approach lanes: one shared left-through lane and one dedicated right-turn lane. This improvement is also targeted at improving access to the residential neighborhood in the western portion of Old Town so that residents in the immediate area can better access D Street without having to drive over to 7th Street. This project also provides an opportunity to improve pedestrian access to the transportation center by completing the missing sections of sidewalks along both sides of 4th Street between D Street and C Street.

D Street at 6th Street and D Street at 7th Street

As commercial and residential development grows in both Victorville and Apple Valley, traffic along D Street is expected to intensify. Although 7th Street is the primary north/south arterial serving Old Town it is discontinuous at D Street, forming a “T” intersection, that does not provide direct access over the railroad tracks to E Street and the residential neighborhood and recreational areas north of the tracks. Access to across the tracks is provided by a single at-grade track crossing at 6th Street. There are no other street crossings of the tracks provided in the area. Should Old Town be revitalized it is very likely that the neighborhood and recreational areas served by E Street on the northside of the tracks will become more desirable. This will lead to increased revitalization and development activity north of the railroad tracks resulting in more traffic and pedestrians crossing the tracks. This increased traffic will be problematic since 6th Street is not signalized at D Street but is stop controlled and 6th Street does not provide direct access to the commercial street network of Old Town. To provide better connectivity between the neighborhood north of the tracks and the street network south of the tracks, it is proposed that the railroad crossing be relocated from its current location at 6th Street to 7th Street. This relocation would create an arterial crossing of the tracks at a signalized intersection thus facilitating traffic flow, access and safety.



A relocation of the railroad crossing from 6th Street to 7th Street should negate the need for a new traffic signal at 6th Street and provide for an expansion of the Victor Valley Transportation Center to include the Amtrak passenger platform currently located between 6th Street and 7th Street. Relocation of the track crossing could also benefit BNSF Railway by extending the railcar storage area. In order to accommodate the new track crossing, E Street would have to be extended to meet, or connect with, an extended 7th Street. The relocation would also result in the elimination of 6th Street between D Street and E Street thus creating a “T” intersection at D Street and 6th Street that could remain stop controlled for 6th Street. The relocation of the railroad crossing is also likely to improve traffic operations by better accommodating higher traffic volumes on both D Street and 7th Street and by reducing delays for those residents and recreational visitors accessing the areas north of the railroad tracks.

D Street at Hesperia Road

Hesperia Road is an arterial roadway through eastern portion of Old Town that provides connectivity between the City of Victorville, Hesperia, and Apple Valley. The traffic analysis revealed that many commuters use Hesperia Road as an alternate to 7th Street to access both the I-15 freeway and Apple Valley via D Street. Hesperia Road is signalized at D Street with one right right-turn lane and one left-turn lane. During periods of peak traffic flow northbound traffic on Hesperia Road is routinely queued up waiting for the traffic signal with right-turn traffic volumes reaching or exceeding capacity. In order to reduce traffic delays at the intersection and improve Hesperia Road as a commuter alternate to 7th Street, it is recommended that the east curb of Hesperia Road be widened to provide three approach lanes: one left-turn lane and two right-turn lanes with arrows. This single improvement is expected to not only relieve traffic congestion at the intersection but improve future traffic flow on both Hesperia Road and 7th Street.

It is also recommended that the redevelopment of the vacant lot on the southwest corner be conditioned to provide a right-turn pocket lane in order to separate turning vehicles from slowing down or otherwise impacting the main eastbound traffic flows on D Street.

D Street at 11th Street

This intersection is located immediately west of a large curve in D Street as it crosses the Mojave River. As 11th Street provides access to the Victor Valley Medical Center and Victor Valley Memorial Park, facilitating direct access to D Street for hospital staff and patients as well as memorial park staff and visitors would improve traffic conditions for those motorists as well as alternative routes such as Hesperia Road. Therefore, it is recommended that the City install a new traffic signal at this location and coordinate the signal timing with the existing traffic signals on D Street.

Along with the new traffic signal installation, it is recommended that the northbound 11th Street approach be restriped to provide two traffic lanes, separating left-turn traffic from right-turn traffic. This would reduce delays for right-turning motorists headed toward Apple Valley.



D Street / CA-18 at Stoddard Wells Road

Stoddard Wells Road provides an alternative northbound route toward Barstow, with access to the I-15 freeway. It is also anticipated that there could be future residential development along Stoddard Wells Road. To improve efficiency, reduce delays, and increase safety it is recommended that improvements to facilitate turn movements and provide additional right turn and left turn queue storage be implemented. The existing left-turn pockets on D Street and on Stoddard Wells Road should be extended and a new dedicated right-turn lane be striped on the westbound D Street approach. In order to facilitate the turn movements at the intersection it is also recommended that right-turn arrows be provided for westbound D Street and southbound Stoddard Wells Road. It is likely that these improvements will require physical modifications to the center raised median on D Street and street widening along Stoddard Wells Road.

7th Street at Forrest Avenue

Forrest Avenue forms the southern boundary of the Old Town street grid network, and provides primary access to the University Preparatory School site. In order to relieve traffic demand along the 7th Street commercial corridor and improve access to the school site, it is recommended that the northbound 7th Street approach be widened to provide for a dedicated northbound right-turn lane along with an accompanying signalized right-turn arrow.

Hesperia Road at Forrest Avenue

In order to facilitate access to the University Preparatory School site and improve connectivity between 7th Street and Hesperia Road via Forrest Avenue, a new traffic signal is recommended at this intersection. It is also recommended that the eastbound Forrest Avenue approach be widened to provide two approach lanes to accommodate one left-turn lane and one right-turn lane.

7th Street at Mojave Drive

A de facto “gateway” intersection for the southern approach into Old Town Victorville, this intersection currently operates as a three-way traffic signal (opposed phasing) where the eastbound and westbound directions on Mojave Drive do not operate concurrently. With the anticipated increased traffic generated by a revitalized Old Town, this intersection could become a bottleneck. It is; therefore, recommended that the westbound Mojave Drive approach be widened to provide for an additional right-turn lane with a dedicated right-turn arrow. This widening would provide more storage for westbound vehicles and separate turning traffic from through traffic, reducing delays for all motorists at the intersection.



VII. Long-Term Future Conditions with Recommended Improvements (2040)

In order to better understand the benefits of the recommended traffic improvements in Old Town, a LOS analysis was once again conducted using the 2040 traffic simulation model traffic volumes. Within the model, traffic engineers applied the various improvements to the roadway network, including the relocation of the railroad crossing, and made minor adjustments in traffic flows to redistribute, or balance, traffic demand based on anticipated congestion and typical driver behavior. The model was then optimized and performance results were determined. Based on this modeling analysis, it is anticipated that all study intersections within Old Town will operate at LOS C or better in the morning peak hour and at LOS D or better in the evening peak hour. In other words, the model predicts that by 2040 the revitalization of Old Town combined with the implementation of the recommended traffic improvements will result in traffic operations similar to those of today. **Table 10** summarizes the expected LOS for each of the study intersections under the model year 2040 long-term future conditions with recommended improvements analysis scenario.

Table 10: Future Buildout with Improvements (2040)

	Intersection	Traffic Control	AM Peak Hour		PM Peak Hour	
			Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
1	D St @ 4th St	Traffic Signal	5.4	A	13.4	B
2	D St @ 6th St	Two-Way Stop	21.7	C	23.2	C
3	D St @ 7th St	Traffic Signal	23.3	C	39.2	D
4	D St @ Hesperia Rd	Traffic Signal	15.6	B	42.0	D
5	D St @ 11th St	Traffic Signal	10.1	B	13.0	B
6	D St / CA-18 @ Stoddard Wells Rd	Traffic Signal	10.4	B	32.3	C
7	7th St @ B St	Traffic Signal	10.8	B	40.4	D
8	6th St @ Forrest Ave	All-Way Stop	9.3	A	26.0	D
9	7th St @ Forrest Ave	Traffic Signal	13.4	B	20.7	C
10	Hesperia Rd @ Forrest Ave	Traffic Signal	6.8	A	9.8	A
11	7th St @ Mojave Dr	Traffic Signal	29.4	C	38.5	D



Railroad Crossing Relocation

Although the railroad crossing relocation from 6th Street to 7th Street is a part of the recommended improvements, the City of Victorville does not have the authority nor is it likely to have the capital improvement funds to make such a project happen on its own. Ultimately, it is the BSNF Railway and Caltrans that must agree to the changes in roadway, railroad, and intersection configurations. The City and its residents; however, can be influential advocates for such a project and can contribute valuable assistance in seeking State and Federal grant funding. The good news is that both Caltrans and the BNSF Railway are open to discussing the possibility of such a project that would result in a relocation of the railroad crossing.

In terms of this study, it is assumed that by 2040 that the City of Victorville, Caltrans, and the BNSF Railway have agreed to the relocation of the railroad crossing, sufficient grant funding has been secured for the project, and the project has been constructed and is complete. There are many factors that could delay the implementation of such a project, the most obvious being securing the significant State and/or Federal grant funds for construction. Since this is a large scale multi-agency project that is outside the control of the City, traffic engineers, conducted one additional 2040 model run removing the railroad crossing relocation project to determine if traffic conditions worsen. Fortunately, the resulting analysis with the railroad relocation project removed revealed similar performance results for most of the study intersections. However, the modeling exercise revealed that the only way to mitigate future undesirable traffic operations at the D Street and 6th Street intersection was to signalize that location. Therefore, it is recommended that signalization of D Street and 6th Street be an alternative improvement measure in-lieu of the railroad relocation project or as a temporary measure prior to the relocation of the railroad crossing.



VIII. Other Recommended Improvements

Victor Valley Transportation Center

The potential relocation of the railroad grade crossing from 6th Street to 7th Street provides an opportunity to re-envision the Victor Valley Transportation Center. Currently, the Amtrak platform is not “connected” to the transportation center and the constrained site creates access challenges for buses and patrons wishing to park. By eliminating 6th Street, the site could be enlarged and reconfigured to incorporate a modern train station, provision of additional benches and shade structures, and improve access to the site for vehicles, buses, and pedestrians. The additional space could also provide for expanded retail and restaurant opportunities, which could help to create more of a community gathering area and a new sense of place for Old Town.

Parking

In order to facilitate walk-up access to the businesses fronting 7th Street, the City proposes to restore on-street parking to the 7th Street corridor within the study area. This would additionally provide a de-facto buffer zone between street traffic and pedestrian sidewalks, as well as act as a traffic calming measure to slow high-speed pass-through traffic. Old Town currently has an abundance of underutilized angled parking stalls on the one-way portions of A Street and C Street. It is suggested that those two street segments remain as they are currently configured to provide on-street parking to accommodate future short-term parking demand of a growing commercial area and to calm traffic speeds.

Pedestrian Environment

The City should continue to require new commercial developments to improve sidewalks and access ramps along their frontages. As traffic in the commercial areas grows it becomes even more important that gaps in the network of sidewalks be closed. Sidewalks provide a designated place for pedestrians to walk thus encouraging walking and improving public safety. Once an accessible sidewalk network is built out in the commercial area, it is suggested that the City also consider the installation of crosswalks at stop controlled intersections to further emphasize walking and to guide pedestrians to cross streets at controlled locations rather than at other uncontrolled locations.

Continuous and complete sidewalks are also needed in residential areas to round out a pedestrian friendly environment. It may not be practical to wait for redevelopment in the residential areas to complete the sidewalk network. Therefore, it is suggested that the City consider including sidewalk improvements as a part of normal street resurfacing projects and to seek out grant opportunities to fund the completion of its sidewalk network. In addition, to sidewalks, the pedestrian environment can be made more attractive with the addition of parkways with low-maintenance landscaping, shade trees, or private overhead awnings. The provision of shaded areas would improve the pedestrian experience in Victorville’s desert climate, which often has high temperatures and harsh sun well into the summer evenings.



Cycling Environment

While Class II bicycle facilities, or bike lanes, are planned for some Old Town streets, the implementation of a “road diet” on 7th Street may provide, if desired, an opportunity for the installation of bicycle lanes along this key central corridor. As Old Town’s residential population grows it is unclear how many residents will choose cycling as a viable transportation mode for commuting or short personal trips. However, the City should consider adopting planning policies that promote low cost cycling amenities in new developments to encourage active living. Such amenities could include secured bicycle parking for new multi-family residential projects and on-street bicycle racks in commercial areas. Additionally, the City should consider incorporating new bicycle detection systems when traffic signals are modernized.

DRAFT



IX. Transportation Improvement Phasing and Funding

Estimated Cost of Infrastructure Improvements

Based on the traffic analysis for the long-term future scenario, a number of infrastructure improvements are recommended to facilitate traffic flow into, out of, and throughout the Old Town as it is revitalized and redeveloped into a bustling commercial and residential area. A number of these improvements focus on intersections along D Street, which as a state route is under the jurisdiction of the California Department of Transportation (Caltrans).

Accordingly, an order-of-magnitude cost estimate for the recommended improvements was developed based on typical costs for similar infrastructure projects throughout the region, including costs for real estate acquisition, construction, traffic signal modifications, roadway signing and striping, and demolition. Additional project “soft costs” associated with environmental clearance, engineering design, and project management was assumed to amount to 30% of total construction costs. A 10% project contingency was also applied to account for unforeseen circumstances. **Table 11** provides a summary of potential project costs for each of the recommended improvements, divided by City and State jurisdiction. Details of the project costs estimates can be found in the detail sheets included in **Appendix D**. In terms of today’s dollars, it is estimated that the recommended improvements would total approximately \$7.6 million, with about \$1.8 million of that amount for City-controlled intersections and about \$5.8 million for State-controlled intersections.

Potential Public Funding of Improvements

It is unlikely that the City would be able or willing to fund the entire recommended traffic mitigation program from its capital improvement program alone. Furthermore, the State of California, or Caltrans, is precluded by law from funding traffic improvements that directly mitigate private development related traffic impacts. Caltrans also has no legal authority to charge developers for project mitigation improvements to State owned transportation facilities. The City; however, through its development review and approval process can condition developers to work with Caltrans to implement improvements within the State right-of-way through a construction permit process. It is recommended that the City look for opportunities to condition new developments in Old Town to provide right-of-way dedications and implement recommended improvements as deemed appropriate for their size and impact to the transportation system.

In order to fund the necessary improvements to support an aggressive growth 2040 scenario, it is suggested that the City consider working closely with Caltrans and BNSF Railway to seek possible grant funding for two possible improvement projects. The first being the relocation of the railroad crossing at 6th Street to 7th Street since that project has multiple community, railroad, economic and safety benefits beyond just its future traffic flow enhancements. Likewise, it is suggested that the City and Caltrans work together on a D Street corridor traffic improvement project to improve traffic flow and safety. That project could incorporate elements of this study’s recommendations along with other traffic control and



communications improvements that will have an immediate public benefit for today’s motorists whether or not the Old Town revitalization efforts as envisioned in the Specific Plan come to fruition.

Table 11: Estimated Cost of Improvements

Intersection		Agency	Description	City Costs <i>(in 2017 dollars)</i>	State Costs	
1	D Street @ 4th Street	Caltrans	Widen 4th Street to include left-turn pocket lane (matches opposing driveway).		\$ 300,000	
2	D Street @ 6th Street		Relocate BNSF railroad grade crossing from 6th Street to 7th Street.		\$ 1,800,000	
3	D Street @ 7th Street					
4	D Street @ Hesperia Road		Widen Hesperia Road to include dual right-turn lanes with overlap phasing. Widen D Street eastbound approach to include right-turn pocket lane.		\$ 975,000	
5	D Street @ 11th Street		New traffic signal installation recommended.		\$ 350,000	
6	D Street/CA-18 @ Stoddard Wells Road		Extend left-turn storage on Stoddard Wells Rd & D St. Provide right-turn pocket on CA-18. Provide right-turn overlap phasing for Stoddard Wells Rd & CA-18.		\$ 700,000	
7	7th Street @ B Street	City of Victorville	Provide left-turn pocket lanes for all approaches. Provide protected/permissive left-turn phasing on 7th Street.	\$ 300,000		
9	7th Street @ Forrest Avenue		Provide northbound right-turn pocket with overlap phasing.	\$ 90,000		
10	Hesperia Road @ Forrest Avenue		New traffic signal installation recommended. Widen Forrest Ave to include 1 left-turn lane and 1 right-turn lane.	\$ 450,000		
11	7th Street @ Mojave Drive		Provide westbound right-turn pocket with overlap phasing on Mojave Dr.	\$ 445,000		
Construction Cost				\$1,285,000	\$4,125,000	
Cost of Design, Environmental Analysis, Project Management (30%)				\$ 385,500	\$1,237,500	
10% Contingency				\$ 128,500	\$ 412,500	
Total Cost of Proposed Improvements				\$1,799,000	\$5,775,000	



Potential Developer Fee Program

The City may also wish to consider implementing a traffic impact fee program for development in Old Town. Development traffic fees could be structured in a variety of ways to collect some or all the funds necessary to implement the recommended traffic improvements. The fee program could be applied to just new developments or it could be applied to all revitalization activities. Such development fees could also be leveraged as local match dollars when applying for grant funds. When such a fee program is implemented it is generally based on the number of peak hour trips the project generates in the busiest peak hour, which for Old Town would be the evening peak hour. The per trip fee is based on dividing the number of dollars necessary to build all the improvements by the number of anticipated trips. To provide insight into the possible range of such fees **Table 12** provides three possible fee structures.

Table 12: Potential Traffic Impact Fee Programs

Total estimated cost of improvements: \$ 7,574,000			
Scenario	Grant Funds (\$)	Expected No. Trips	Fee per Trip Generated
<i>Improvements to be funded by all anticipated growth</i>	\$ 0	5,113	\$ 1,482
<i>Improvements to be funded by new development only</i>	\$ 0	3,013	\$ 2,514
<i>Improvements to be funded by new development only, with 50% grant funding</i>	\$ 3,787,000	3,013	\$ 1,257



X. Summary and Conclusions

Overview

The City of Victorville is updating its Old Town Specific Plan, including an analysis of existing (2017) conditions as well as two future revitalization scenarios, one with moderate growth in the near-term (2025) and one with a more aggressive growth outlook in the long-term (2040). As a part of the revitalization effort a “road diet” is planned for 7th Street between D Street and Forrest Avenue in order to calm traffic speeds, create a sense of place, and re-introduce on-street parking within the commercial core of Old Town. The two future traffic scenarios outline anticipated traffic growth from ambient areawide growth, revitalization of existing commercial space, and potential new commercial and residential development within Old Town.

Analysis and Results

Within the study area, the primary traffic operations constraint is the heavy peak traffic flows along D Street, which provides access between Apple Valley and the I-15 freeway. Generally, traffic volumes within the study area are heavier in the evening peak period than in the morning peak period. During the morning peak hour, all study intersections currently operate at an LOS C or better and remain so in both the moderate growth 2025 scenario and the aggressive long-term growth 2040 scenario, even without the implementation of the recommended improvements. A summary of the anticipated morning peak hour traffic performance of the study intersections is shown in **Table 13**.

Table 13: LOS Analysis Summary (AM Peak Hour)

Intersection		Existing Conditions		2025 Near-Term Conditions		2040 Future Buildout		2040 with Improvements	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	<i>D St @ 4th St</i>	2.4	A	4.4	A	7.6	A	5.4	A
2	<i>D St @ 6th St</i>	13.7	B	15.7	C	19.7	C	21.7	C
3	<i>D St @ 7th St</i>	17.8	B	18.2	B	26.6	C	23.3	C
4	<i>D St @ Hesperia Rd</i>	11.9	B	13.6	B	17.7	B	15.6	B
5	<i>D St @ 11th St</i>	10.6	B	10.7	B	11.2	B	10.1	B
6	<i>D St / CA-18 @ Stoddard Wells Rd</i>	8.6	A	10.1	B	14.2	B	10.4	B
7	<i>7th St @ B St</i>	3.6	A	7.7	A	14.7	B	10.8	B
8	<i>6th St @ Forrest Ave</i>	7.6	A	8.2	A	9.3	A	9.3	A
9	<i>7th St @ Forrest Ave</i>	8.3	A	10.9	B	13.8	B	13.4	B
10	<i>Hesperia Rd @ Forrest Ave</i>	10.8	B	12.2	B	15.1	C	6.8	A
11	<i>7th St @ Mojave Dr</i>	30.7	C	31.7	C	33.7	C	29.4	C



During the evening peak hour, all study intersections currently operate at an LOS C or better. Under the moderate growth 2025 scenario traffic conditions are expected to worsen slightly; however, all study intersections are expected to perform at an LOS D or better in conformance with the City’s General Plan. As growth in Old Town continues beyond the 2025 scenario level traffic operations begin to worsen to a level necessitating the implementation of traffic improvements to stay in compliance with the City’s General Plan goal of LOS D or better during peak traffic flows. Should the aggressive growth 2040 scenario occur without improvements, the traffic analysis revealed that eight of the eleven study intersections would fail to operate at acceptable LOS. However, as shown in **Table 14**, the aggressive 2040 long-term growth scenario can be accommodated through the implementation of a strategic traffic improvement program.

Table 14: LOS Analysis Summary (PM Peak Hour)

Intersection		Existing Conditions		2025 Near-Term Conditions		2040 Future Buildout		2040 with Improvements	
		Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS	Delay (s)	LOS
1	D St @ 4th St	4.9	A	10.4	B	19.5	B	13.4	B
2	D St @ 6th St	17.6	C	33.8	D	127.1	F	23.2	C
3	D St @ 7th St	18.1	B	37.0	D	126.7	F	39.2	D
4	D St @ Hesperia Rd	15.4	B	26.6	C	81.0	F	42	D
5	D St @ 11th St	10.9	B	24.6	C	422.9	F	13.0	B
6	D St / CA-18 @ Stoddard Wells Rd	18.6	B	26.2	C	89.8	F	32.3	C
7	7th St @ B St	4.1	A	19.4	B	212.3	F	40.4	D
8	6th St @ Forrest Ave	8.1	A	10.6	B	27.2	D	26.0	D
9	7th St @ Forrest Ave	6.6	A	10.7	B	23.5	C	20.7	C
10	Hesperia Rd @ Forrest Ave	11.4	B	17.2	C	67.4	F	9.8	A
11	7th St @ Mojave Dr	31.2	C	35.4	D	64.0	E	38.5	D

Planned and Recommended Improvements

In order to facilitate the revitalization of the 7th Street commercial corridor, a “road diet” is planned for 7th Street within the study area. This would reduce the number of travel lanes from two per direction to one per direction, with on-street parking as well as a center median that opens up to provide left-turn pockets at key intersections.

Within the study area, D Street is by far the busiest traffic corridor, providing access to both Apple Valley and the I-15 freeway. Generally, intersection improvements are recommended for the aggressive growth long-term 2040 scenario to facilitate traffic operations within and through Old Town. D Street traffic improvements include minor roadway widening to provide additional approach lanes, new traffic signals to improve access and balance traffic demands, and the relocation of the BNSF Railway crossing from 6th



Street to 7th Street. Other traffic improvements are also recommended for Hesperia Road and in the vicinity of the currently vacant University Preparatory School in order to accommodate growth in southern Old Town and improve access into and out of Old Town for residents, businesses and commuters alike.

The recommended traffic improvements outlined in this study are expected to cost approximately \$7.6 million. In order to fund the necessary improvements to support an aggressive growth 2040 scenario, it is suggested that the City consider working closely with Caltrans and BNSF Railway to seek possible grant funding. The majority of the traffic improvements outlined in this study are slated for D Street, which is owned and operated by Caltrans. The City should condition future development project to dedicate and improve right-of-way as necessary for the implementation of the improvements. Alternatively, the City could institute a traffic impact fee program so that developers could pay their fair share of improvement costs.

Conclusions

As outlined in this study, it is anticipated that the existing roadway network can accommodate a “road diet” for 7th Street and moderate growth in Old Town through 2025 without significantly impacting traffic operations. Should growth in Old Town continue beyond that outlined for 2025, it will likely be necessary to implement a series of traffic improvements, primarily along D Street, in order for the Specific Plan to remain in compliance with the traffic management goals outlined in the City’s General Plan.