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# TECHNICAL MEMORANDUM

| | | |
|---|---|---|
| DATE: | August 7, 2020 | |
| TO: | Joe Leach/City of Dixon | |
| FROM: | Erin Vaca/DKS Associates<br>Bobby Sidhu/DKS Associates | |
| SUBJECT: | South First Street Corridor Study – Existing Conditions and Recommended Projects - Revised | P# 14219-002 |

This memorandum summarizes the corridor study for the South First Street/State Route 113 (First Street) corridor south of A Street in Dixon, California. The study area limits extend from A Street in downtown Dixon to the city's boundary south of Parkway Boulevard. The purpose of the study is to identify short to mid-term improvements that will enhance the corridor's performance as a key multi-modal corridor linking newer residential neighborhoods to the south with Dixon's historic downtown while continuing to serve regional and truck traffic. Projects developed through this corridor study will also inform Dixon's General Plan and other planning efforts.

## BACKGROUND

First Street is classified as a principal arterial and serves many different users including regional travelers, local travelers, commercial vehicles, commuters, and agricultural trucks. First Street is configured as a two-lane arterial through downtown and central Dixon. A four-lane section may be found between Valley Glen Drive and Parkway Boulevard. South of Parkway Boulevard, SR 113 transitions to a two lane, rural roadway.

Traffic and infrastructure concerns voiced by City staff are concentrated between East Chestnut Street and Country Fair Drive. This section is the most constrained in terms of right-of-way (ROW) and lacks continuous bicycle facilities. Pedestrian crossing safety is also a concern at the Dixon Mayfair site. This facility regularly hosts well-attended events, requiring large crowds to cross First Street to reach the site from the parking lot.

In addition, school-related traffic in the mornings causes significant congestion along this segment. Backups are caused by southbound left-turning vehicles at East Chestnut, leading to the back entrance of Dixon High School, and at the driveway to the Neighborhood Christian School. Lacking left turn pockets, these movements cause significant queues to form. The Chestnut Street intersections are planned to be signalized as part of a development agreement and any improvements.

In addition, side street traffic from West Cherry Street encounters high levels of delay during peak hours.

# EXISTING CONDITIONS

## Existing Infrastructure

The built roadway and right-of-way (ROW) vary in width along the study corridor, as does the availability and quality of multimodal facilities. Pedestrian sidewalks exist along the entire First Street corridor on both sides and range from five to six feet wide.

Two intersections are controlled by traffic signals with the remaining intersections being side-street stop-controlled. The first traffic signal is located at A Street and First Street. Crosswalks are present on all sides at this signalized intersection. The second traffic signal is located at Parkway Boulevard and South First Street. One crosswalk is parallel to Parkway Boulevard on the border of Dixon and two crosswalks are parallel to SR 113 at this second location. Both signalized intersections have pedestrian push buttons and curb ramps.

Existing pedestrian crossings include three striped crosswalks between the two traffic signals. A striped pedestrian crosswalk with a reflective sign exists at Valley Glen Drive, Dixon May Fair, and West Cherry Street. The crosswalk at West Cherry Street is posted as a school zone.

Street lighting exists from Parkway Boulevard to Dixon May Fair. On the rest of the corridor, there is no lighting present until A Street. There is a Class II bike lane along First Street from Valley Glen Drive to Parkway Blvd.

The existing facilities and cross sections are summarized below and are also depicted in the diagrams included as Appendix A.

- **Parkway Boulevard/E Park Boulevard to Valley Glen Drive/Heritage Lane** – two lanes in each direction with left turn pockets. Sidewalks are continuous and bicycle lanes striped on both sides of roadway. The speed limit along this segment is 40 mph.
- **Valley Glen Drive to Country Fair Drive/ Silveyville Cemetery Road** – This section is two lanes with left turn pockets and a bicycle lane in the northbound direction. Southbound, the roadway tapers to one lane and lacks a shoulder or bicycle lane. The **speed limit along this segment is 40 mph.**
- **Country Fair Drive to West Chestnut Street – T**his is the longest segment due to the distance between intersections. The driveways to the Neighborhood Christian School, Silveyville Cemetery and Dixon May Fair are located within this segment. North of Country Fair Drive, the speed limit reduces to 30 miles per hour. The roadway width through this section is about 25 feet with the ROW being about 40 feet between the edge of the sidewalks. South of West Cherry Street, drainage flumes are found along the west side of the roadway and along the east side starting at the Dixon Mayfair site. Utility poles along the east side pose another constraint to potential widening or addition of bicycle or pedestrian facilities. Residential uses with on-street parking are found along the west side starting at south of West Cherry Street.
- **North of East Chestnut Street -** the study corridor passes through historic residential areas with on-street parking and limited space available for separate bicycle facilities, although sidewalks are continuous along this stretch. The speed limit is 25 mph in this segment.

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## Traffic Volumes

Traffic counts were collected on Tuesday April 20, 2019. The intersection volumes are presented in **Figure 1** for the study area.

## Collision Data Analysis

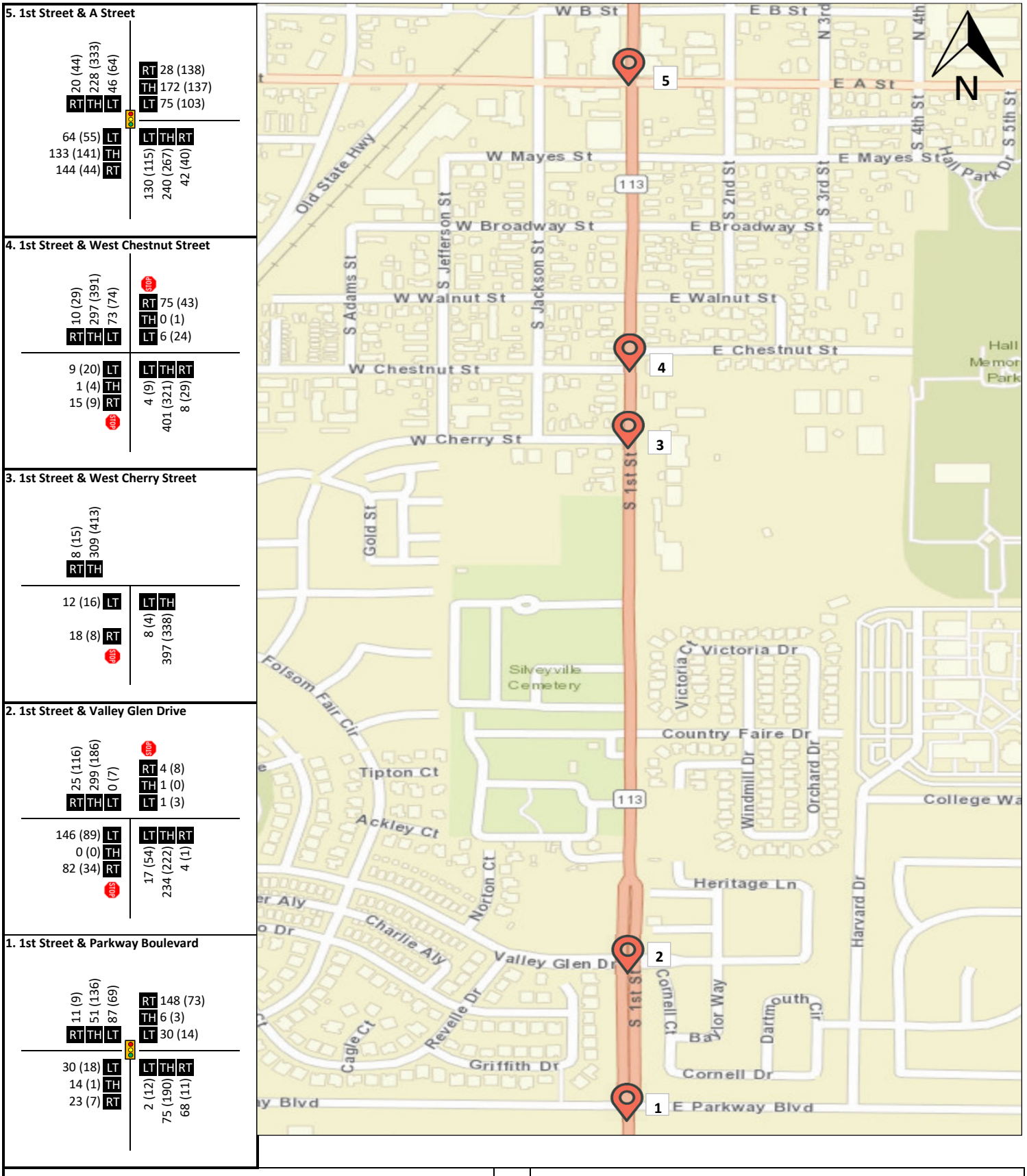
The raw collision data was retrieved from the Statewide Integrated Traffic Records System (SWITRS) for the most recent five years for which complete collision data was available (July 1, 2014-December 31, 2018). The dataset includes a multitude of information for each collision, including date, time, location, traffic control, weather, severity, primary collision factor, lighting and CHP notes. All collisions were classified as intersection or segment collisions based on the distance to the nearest intersection.

In total, 36 collisions occurred on the study corridor between January 1, 2014, and December 31, 2018. Of these collisions, one involved an injury and eight resulted in possible injury, as shown in **Table 1.** The majority of collisions (28) occurred at intersections compared to collisions along segments (8). The primary collision factors contributing to the majority of the collisions include, improper turning, driving under the influence (DUI), and unsafe speed, accounting for 21 percent, 21 percent, and 18 percent of total collisions, respectively.

Four of the five study intersections had collisions during the study period. Collision rates for each of these three intersections were calculated and compared with those of similar facilities noted in the 2015 Collision Data on California State Highways. **Table 2** summarizes the collision statistics at these five study intersections. As shown, the intersection of First Street at A Street has a collision rate exceeding the statewide 95$^{th}$ percentile values for similar facilities.

There were three collisions which involved pedestrians. Two pedestrian collisions occurred south of Cherry Street. Both of these collisions resulted in possible injury (report of pain, but not visible injury). The primary collision factors in these cases were pedestrian violations (possibly jaywalking) and unsafe vehicle speed. The third pedestrian collision occurred at Valley Glen Drive which was also a possible injury collision.

Rear-end, hit-object, and side-swipe collisions are the most commonly observed collision types. The primary collision factors included unsafe speed and improper turning. The majority of rear-end collisions were due to unsafe speeds.




**LEGEND**

xxx(xxx) AM Peak (PM Peak)

Traffic Signal

Stop Control

Data Collected:

Tuesday, April 20, 2019

Existing Turning Movement Counts
1st Street Corridor

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Figure 1

**Table 1: Percentage of Total Collisions by Severity**

| Severity | Number of Collisions |
|---|---|
| Fatal | 0 |
| Injury (Severe) | 0 |
| Injury (Other Visible) | 1 |
| Injury (Complaint of Pain) | 8 |
| Property Damage Only | 27 |
| Total | 36 |

**Table 2: Collision Frequencies and Rates for Intersections**

| Intersection | # of Collisions | Collision Rate[1] | 95th Percentile Collision Rate[2] |
|---|---|---|---|
| First Street and A Street | 14 | **0.46** | 0.44 |
| First Street and Chestnut Street | 0 | 0 | 0.32 |
| First Street and Cherry Street | 4 | 0.24 | 0.38 |
| First Street and Valley Glen Drive | 5 | 0.31 | 0.34 |
| First Street and Parkway Boulevard | 5 | 0.37 | 0.37 |

*Notes: 1) Collision Rate, defined as the number of accidents per million vehicles entering the intersection.*
*2) Collision rate that exceeds 95 % of similar California intersections.*

## Current Plans and Projects

### Pardi Community Plaza

Pardi Community Plaza is an approved new development that will occupy a vacant gravel parcel on the southeast corner of East A Street and First Street. The space is to be used for community events like farmers markets, fairs, live performances and other special events. The new development is designed to draw more people to the area. Therefore, increased traffic may be expected along the study corridor during special events. Access into the development will be

provided from an ingress only driveway along East A Street. Exiting traffic can only access First Street from a right-out, egress only driveway. The bid opened in October 2018 and construction is expected to start soon.

### Traffic Signals

Two new signals will be installed along First Street at East and West Chestnut Streets and at Valley Glen Drive. Both were funded in 2019 and will be completed in the near future. The roadway will also be flattened to provide accessible crosswalks at First Street and Chestnut.

### Solano Safety Plan

The 2018 Solano Travel Safety Plan included possible improvements along First Street corridor from A Street to Parkway Boulevard: modify speed limit, automated speed enforcement cameras, install curb extensions and signal hardware/pedestrian crossing improvements at the A Street intersection.

### Dixon Streets Master Plan

The Streets Master Plan for the City of Dixon, May 2014, recommended widening First Street to four lanes from A Street to County Fair Drive. However, this widening would be extremely difficult due to the right-of-way restrictions in this segment.

### Solano Transportation Authority (STA) Active Transportation Plan

The STA Active Transportation Plan study team has prepared draft recommendations for bicycle and pedestrian projects in Dixon (currently under review by the City). The draft Active Transportation Plan as of June 2019 calls for a Class IV separated bikeway on First Street from Parkway Boulevard to H Street, which is within the study corridor. The proposed recommendations do not go into detail about feasibility or cost but suggest buffered bike lanes and staying within the existing right-of-way.

### Caltrans

Caltrans may be planning a utility project along the study corridor. As of this writing, the project team has not yet received further information on any planned Caltrans projects.

# IMPROVEMENT OPTIONS

Potential short and long-term projects for each corridor segment are presented below. Conceptual diagrams and cost estimates are provided in **Appendix A** and **Appendix B**. The long-term improvement options can be incorporated into the bicycle network shown in the City's General Plan, which is in the process of being updated.

## Segment 1: Parkway Boulevard to North of Valley Glen Drive

Potential Short-term Improvements: Segment 1 already has a raised median with two lanes in each direction and Class II bike lanes on both sides. There are no recommended improvements for the near-term along this segment of First Street.

Potential Long-term Improvements: The STA Draft Dixon Active Transportation Projects (ATP) Plan recommends a Class IV separated bikeway along both sides of 1st Street. This segment would be completely restriped to include 6-foot bike lanes with 4-foot buffer, including vertical

separation, on both sides; and lane widths would be reduced to 11 feet. These improvements are estimated to cost approximately $139,000.

## Segment 2: North of Valley Glen Drive to Country Fair Drive

This segment narrows down to one lane and a striped shoulder in the southbound direction. The outside northbound lane turns into a right turn only lane at Country Fair Drive. This segment has a two-way left turn lane in the center, which turns into a left turn lane at Country Fair Drive. The Class II bike lane continues in the northbound direction but is not present in the southbound direction.

Potential Short-term Improvements: Installing a bicycle lane in the southbound direction for this segment would improve bicycle connectivity. A Class II bike lane could be installed from south of the Silveyville Cemetery Road driveway to Valley Glen Drive, which would require restriping. There is approximately 55 feet of width available which would mean 5-foot bike lanes, 11-foot travel lanes, an 11-foot northbound left turn lane, and an 11-foot northbound right turn lane. This improvement is estimated to cost $42,000.

Potential Long-term Improvements: The long-term alternative along this segment would be to widen the southbound sidewalk into a multi-use path of 10 feet to accommodate bikes and pedestrians. This would require removal of trees, excavation, paving and drainage costs, but only on one side of the roadway. Bicyclists and pedestrians traveling southbound will have a continuous multi-use path between West Chestnut Street and Valley Glen Drive. Bicyclists traveling northbound would need to cross over at the signalized intersection of Valley Glen, which has existing striped crosswalks. This multi-use path would connect to the long-term recommendation in the next segment from Country Fair Drive to West Chestnut Street. These improvements are estimated to cost approximately $650,000.

## Segment 3: Country Fair Drive to West Chestnut Street

### Segment 3A Between Country Fair Drive & South of West Cherry Street

Potential Short-term Improvements: A Rectangular-Rapid-Flashing-Beacon (RRFB) and high visibility crosswalk is recommended at the Dixon May Fair entrance to improve pedestrian safety when crossing between the parking lot and the Dixon May Fair. This improvement is estimated to cost $63,000.

Potential Long-term Improvements: This segment is highly constrained by the drainage features along both sides of the roadway and utility poles along the east side. Widening the roadway to accommodate Class II bike lanes on both sides of the roadway would be very costly. While a simple alternative would be to paint sharrows and provide shared Class III bike lanes, this is not recommended due to safety concerns the high volume of trucks.

A long-term improvement alternative along this segment would be to widen the west sidewalk into a multi-use path of 10 feet to accommodate bikes and pedestrians. This would require removal of trees, excavation, paving and drainage costs, but only on one side of the roadway. Also, the utility poles are located on the east side of the roadway and would not conflict with this alternative. This improvement is estimated to cost approximately $1,090,000.

### Segment 3B between South of West Cherry Street and West Chestnut Street

Potential Short-term Improvements: Future operations of the intersection at First and Cherry Streets were evaluated as part of the Dixon General Plan update. While this intersection would not meet the City's LOS standard in 2040 due to minor street delay, it also does not meet the peak hour volume signal warrant. There is a school crossing across First Street at this location. If this intersection is not signalized, a concrete curb bulb-out at the southwest corner of First Street and Cherry Street would reduce the crossing distance for pedestrians and encourage reduced vehicle speeds. The curb bulb-out is estimated to cost approximately $30,000.

Potential Long-term Improvements: Given the constrained right of way and the community's desire to retain on street parking, there are no long-term improvements recommended for this sub-segment. Bicyclists can be encouraged to use routes parallel to First Street between Chestnut and A Streets. Alternative routes include South Jackson Street to West Cherry Street on the west side and East Chestnut Street from the east side. Cyclists arriving at East Chestnut and First Street would have the option to ride with other vehicular traffic between East Chestnut and West Cherry or dismount and use pedestrian facilities, including the crosswalk at West Cherry Street, to access the multi-use path proposed as a long term improvement for Segment 3A.

## Segment 4: West Chestnut Street to South of Mayes Street

As previously mentioned, Chestnut Street at First Street will be signalized. The City owns the right-of-way between the sidewalks, which is approximately 55 feet wide. Due to the roadway width constraints this segment would be difficult to widen.

Potential Short-term Improvements (Alternative A): The currently existing roadway width could accommodate a left-turn storage pocket onto East Chestnut to access the school. This lower-cost alternative would prohibit parking between Walnut Street and East Chestnut Street and involve re-striping to add a left turn pocket. The roadway would be striped to include an 11-foot southbound travel lane and an 11-foot southbound left turn lane. This short-term project alternative is illustrated as Alternative A in the figures in Appendix A. This project would also require curb markings along the block to prohibit parking. Short-term Alternative A is estimated to cost approximately $27,000.

Potential Short-term Improvements (Alternative B): A second short-term project alternative would be to continue bicycle lanes along this segment while also incorporating a southbound left turn lane. This alternative would require removal of on-street parking between East Chestnut and Walnut Street and removal of landscaping on the east side of the roadway (there are no utility poles in this short segment). These modifications would provide 44 feet of width to accommodate Class II bike lanes in both directions, a southbound travel lane, southbound left turn lane, and a northbound travel lane. This scenario is illustrated as Alternative B in the figures. This alternative would not require the right-of-way acquisition. Short-term Alternative B is estimated to cost approximately $81,000.

Potential Short-term Improvements (Alternative C – No Change): As an alternative to physical improvements along First Street, bicyclists may be encouraged to use parallel routes between A Street and Chestnut Street. On-street parking would be retained under this alternative.

Potential Long-term Improvements: Due to cost and feasibility considerations, there are no recommendations for long-term improvements. Alternatives were considered that would allow

for both on-street parking and a left turn lane at East Chestnut Street, or that would accommodate Class II bike lanes in both directions, on-street parking, and a left-turn storage pocket. These options would require removal of landscaping between the sidewalk and roadway on both sides and prohibitively costly trenching and utility relocation.

Another option considered was addition of bicycle lanes without widening the roadway. From Walnut Street to Mayes Street there is at least 36 feet of width along the roadway. In order to install Class II bike lanes, parking would be prohibited along this segment. However, removal of on-street parking is likely to be unpopular and bicyclists can be redirected to take alternative routes through Dixon's central grid network.

### Segment 5: South of Mayes Street to North of A Street

There are no recommended short-term or long-term improvements for this segment. The travel lanes could be reduced to allow for a Class II bike lane in either the northbound or southbound direction but not both. Excavation and removal of landscaping/sidewalk would be required to accommodate bike lanes on both sides. In either case, on-street parking would be removed, which would likely not be desirable due to the businesses located along this segment.

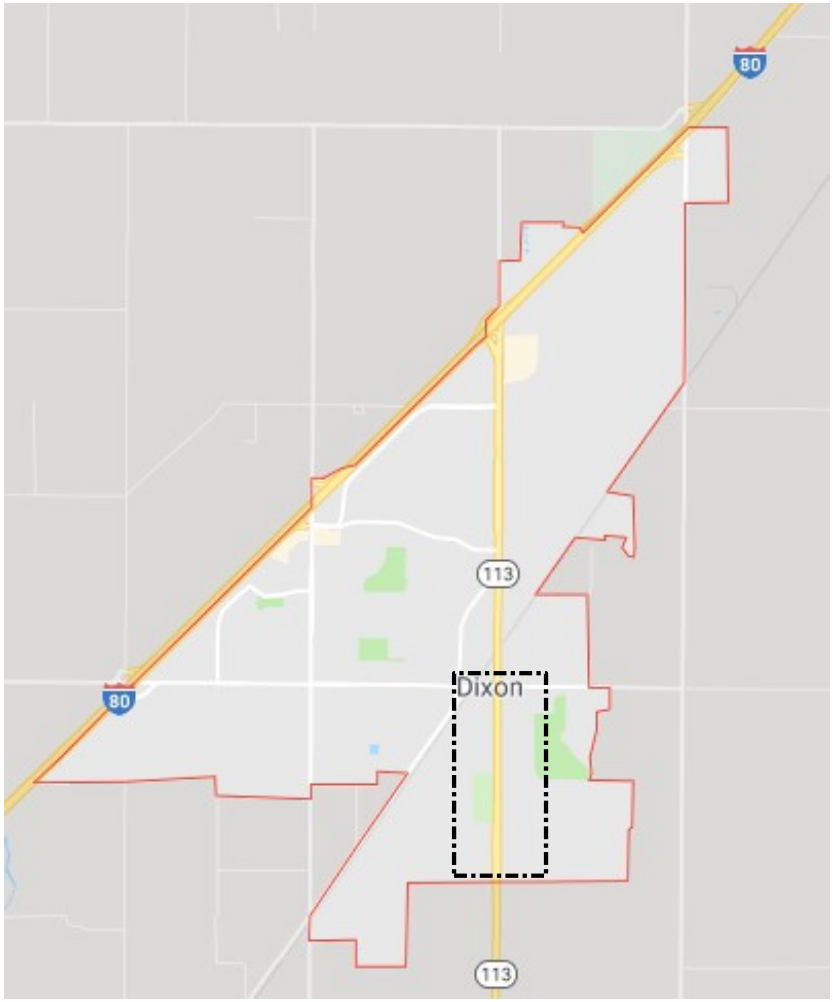
## PUBLIC INPUT SUMMARY

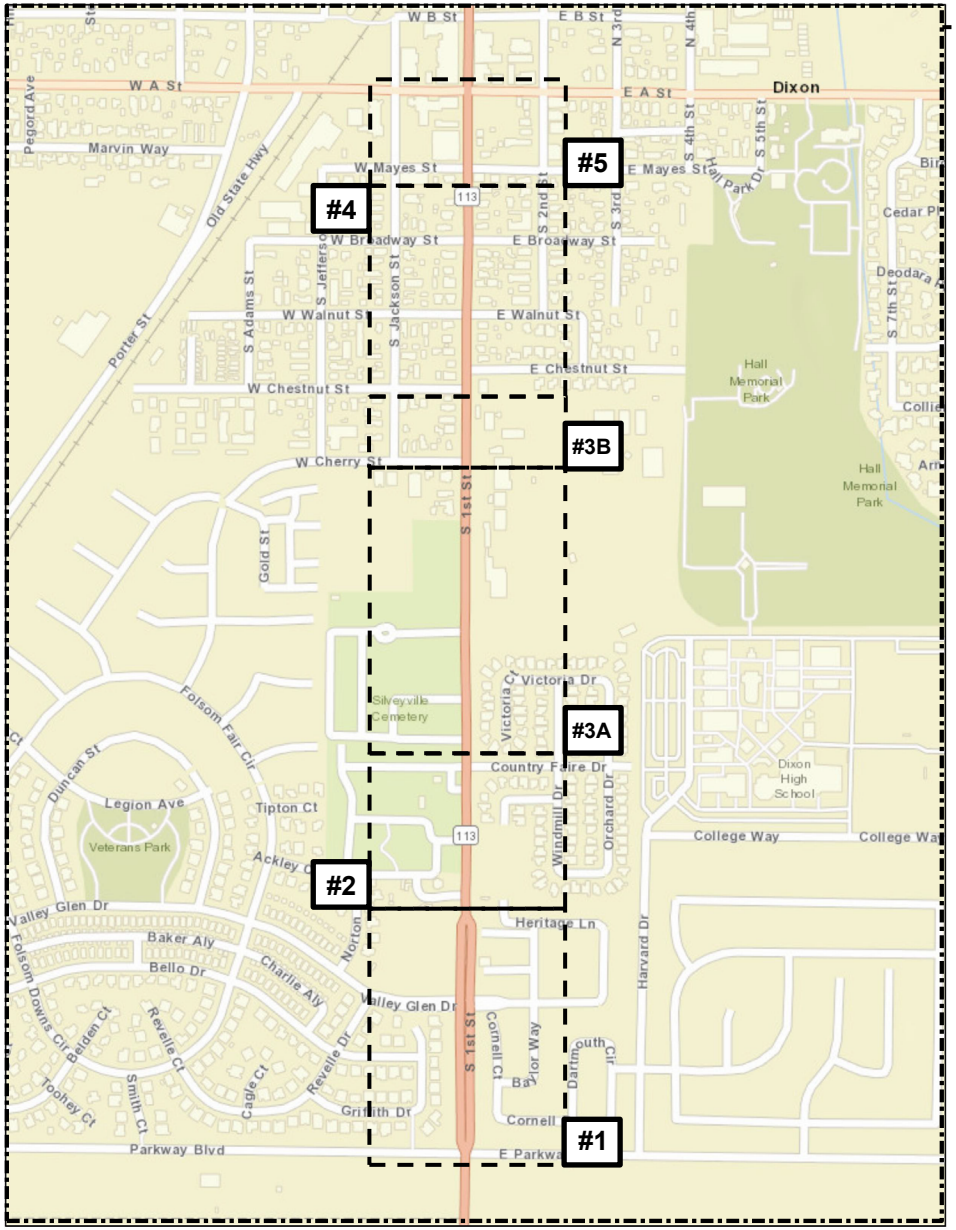
Draft recommendations for short and long term improvements were presented to the City of Dixon Transportation Advisory Commission in October 2019. At this meeting, commission members expressed their concern regarding the potential southbound left turn pocket at East Chestnut Street, citing their concerns about potentially directing increased traffic through a residential neighborhood and the need to remove on street parking.

An inquiry was made about the possibility of adding a southbound left turn pocket on First Street approaching the gate where most families access the Neighborhood Christian School. This option would be possible and would not require utility pole relocation but would require on-street parking restrictions.

# APPENDIX A – DIAGRAMS

# First Street Corridor

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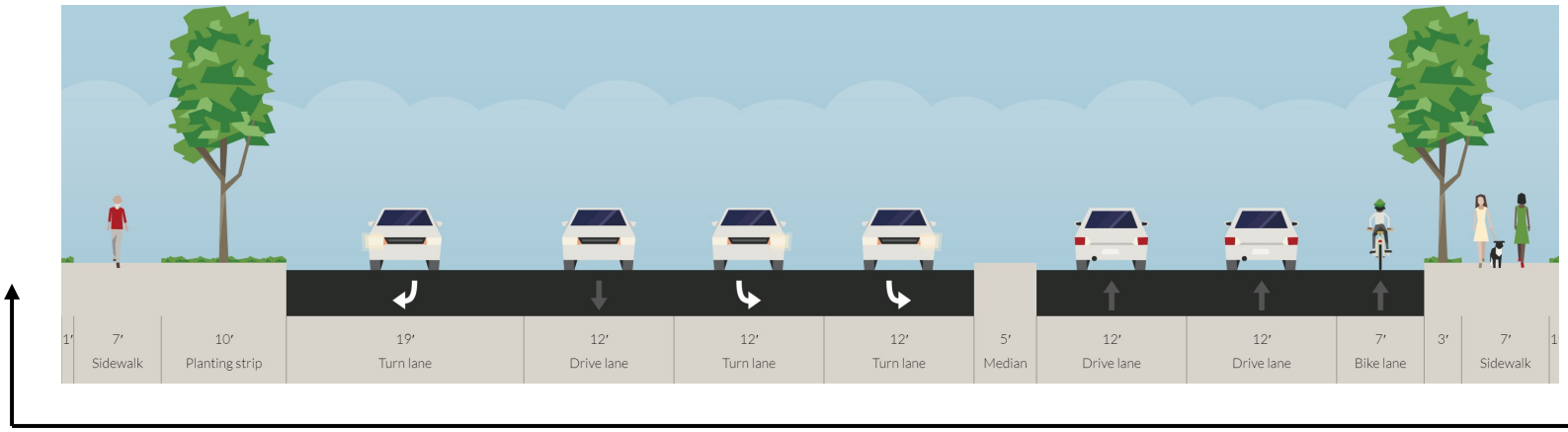
Vicinity Map

# Segment #1 - Between Parkway Boulevard & Valley Glen Drive


| Existing Conditions | |
|---|---|
| **General** | • Speed Limit is 40mph<br>• Adequate lighting<br>• Street landscape<br>• Pavement condition is good<br>• No Parking Any Time sign on both sides |
| **Bike** | • Class II Bike Lane on First Street NB<br>• Class II Bike Lane on First Street SB for 300LF starting on Valley Glen Drive SB |
| **Pedestrian** | • Pedestrian Push Button present at the Parkway Blvd. intersection<br>• Sidewalk on First Street NB and SB<br>• Advanced and intersection pedestrian crossing signs at the Valley Glen Drive intersection<br>• Curb ramps and crosswalk markings at both intersections |

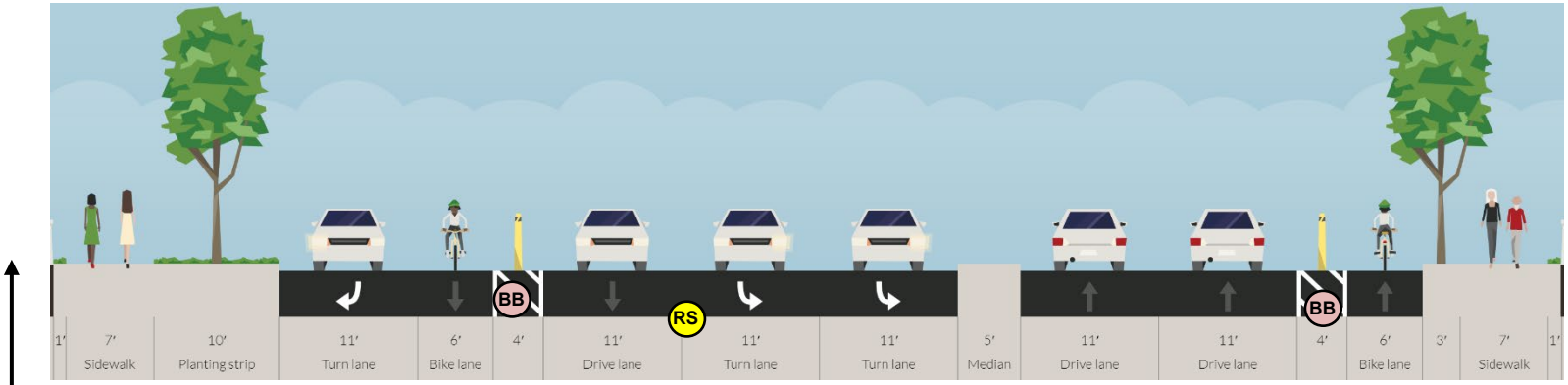


# Segment #1 - Between Parkway Boulevard & Valley Glen Drive


| Long-Term Project Options | |
|---|---|
| **General** | • Reduce lane widths to 11’ |
| **Bike** | • Install 4’ buffer between bike lane and travel lane |

**Legend**

- RS — Restriping
- BB — Bike Buffer

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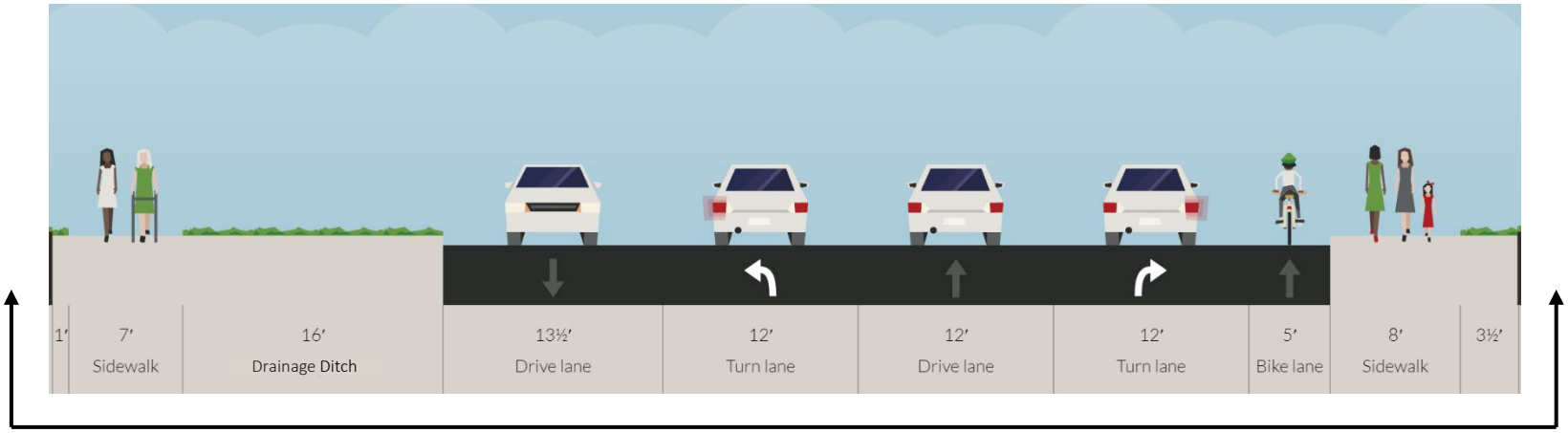
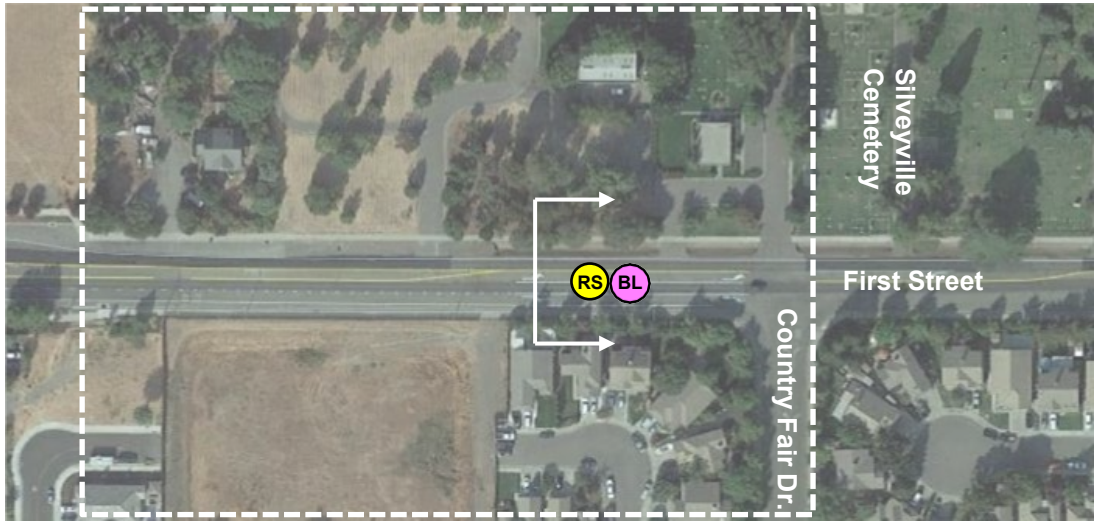
Long-term Project Options

# Segment #2 - Between Valley Glen Drive & Country Fair Drive


| Existing Conditions | |
|---|---|
| **General** | • Speed Limit changes from 40mph to 30mph NB<br>• Some lighting<br>• Dirt ditch median between sidewalk and First Street SB<br>• Good pavement condition |
| **Bike** | • Class II Bike Lane on First Street NB |
| **Pedestrian** | • Sidewalk on both sides of First Street<br>• Curb ramps on the NE and SE corners of County Fair Dr.<br>• No striped crosswalk to cross County Fair Dr. |

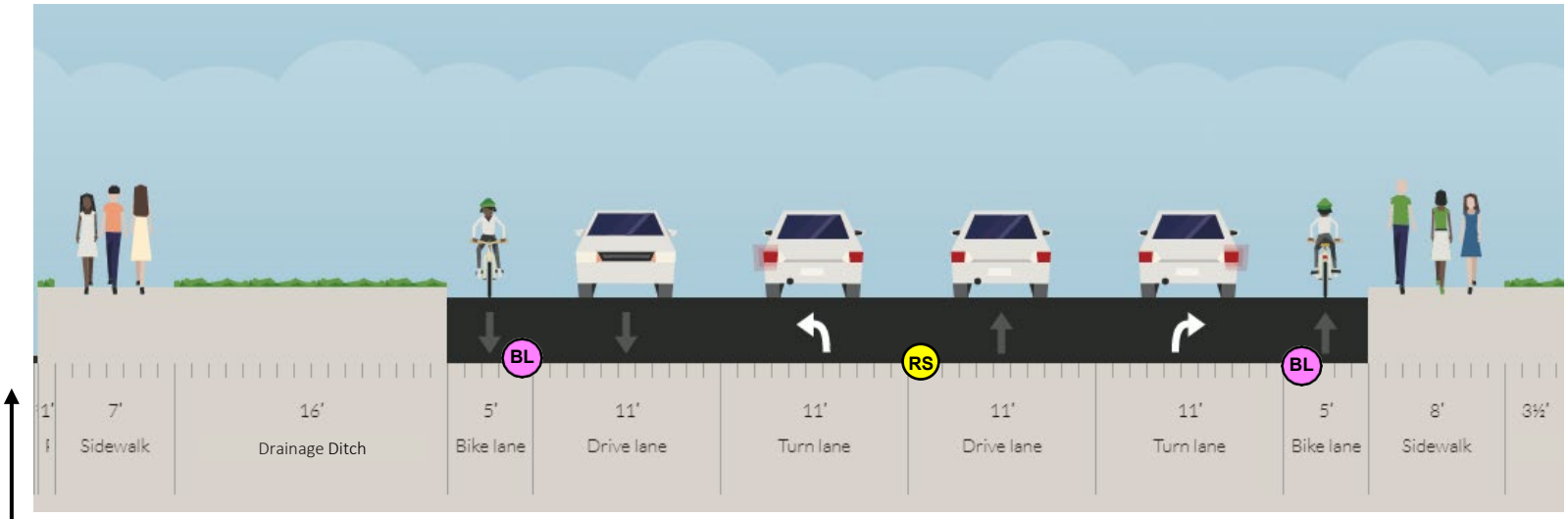


# Segment #2 - Between Valley Glen Drive & Country Fair Drive

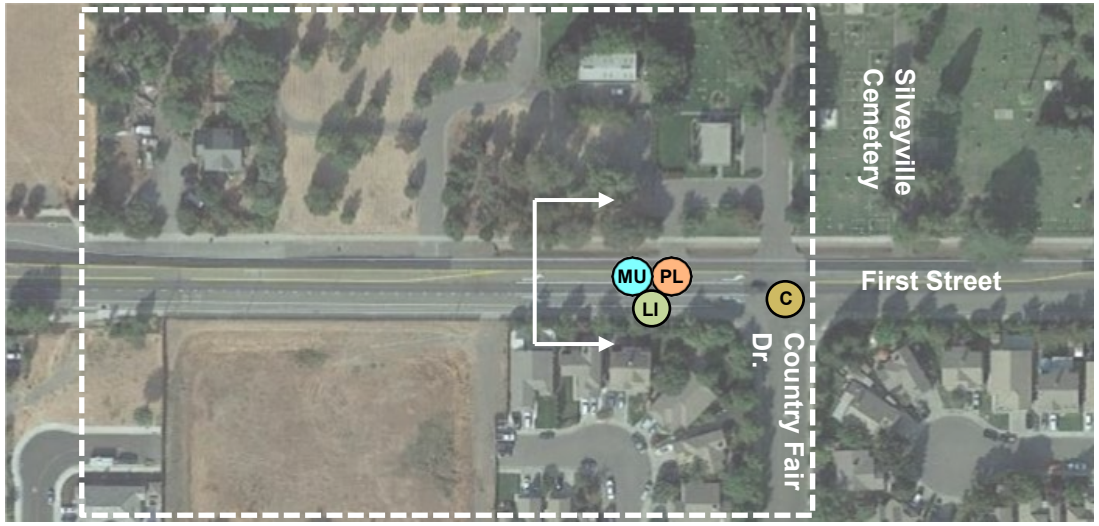



| Short-Term Project Options | |
|---|---|
| **General** | • Reduce lane widths to 11’ |
| **Bike** | • Install 5’ Class II Bike lanes on both sides of First Street |

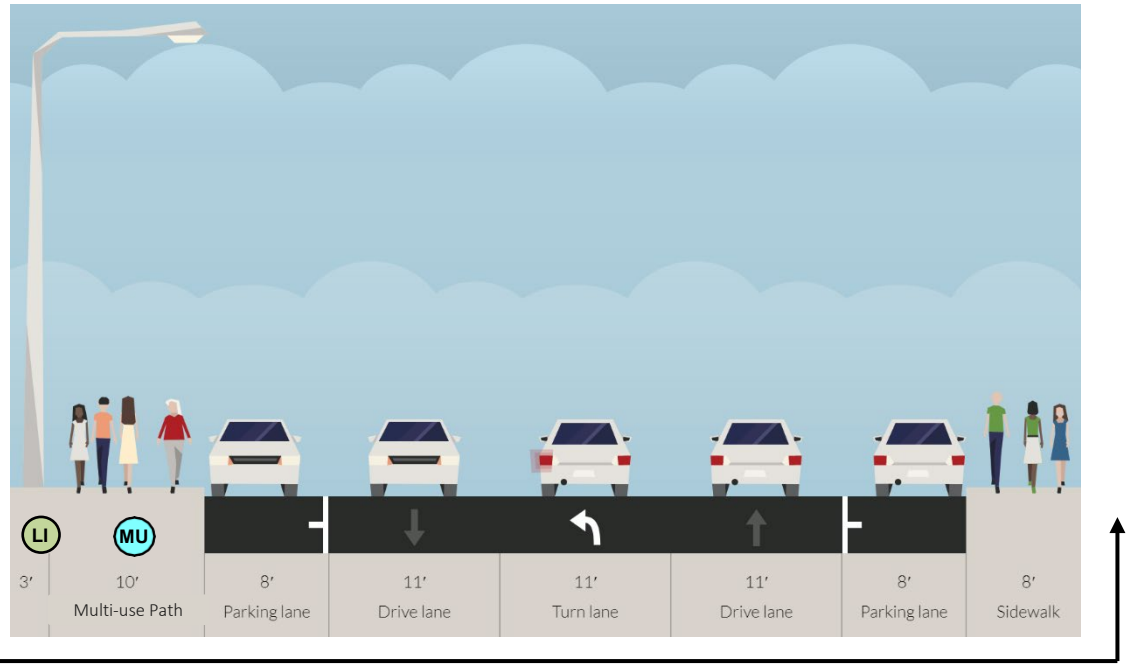
| Legend | |
|---|---|
| RS | Restriping |
| BL | Bike Lane |



# Segment #2 - Between Valley Glen Drive & Country Fair Drive




| Long-Term Project Options | |
|---|---|
| **General** | • Remove landscaping<br>• Adjust drainage<br>• Reduce lane widths to 11'<br>• Install 8' parking lanes on both sides<br>• Install crosswalk on County Fair Dr. parallel to First Street<br>• Install streetlight lighting |
| **Bike** | • Install Multi-use Pathway along west-side |




**Legend**

- BL — Bike Lane
- PL — Parking Lane
- C — Crosswalk
- MU — Multi-use Path
- LI — Lighting

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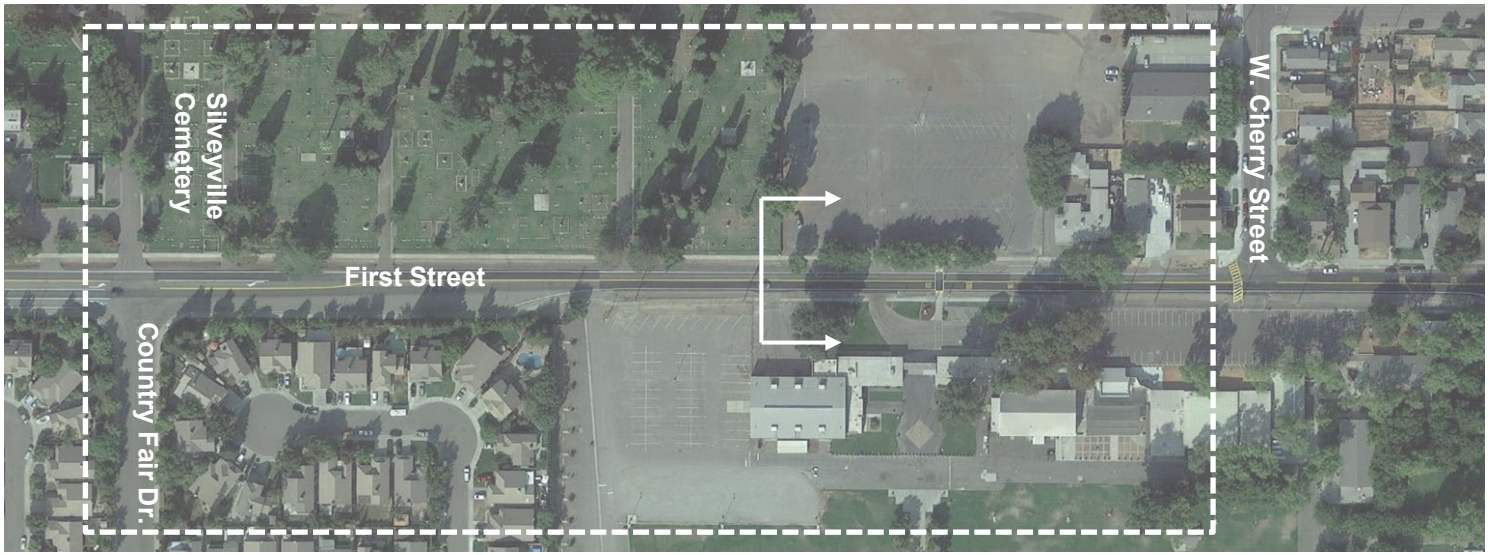
Long-term Project Options

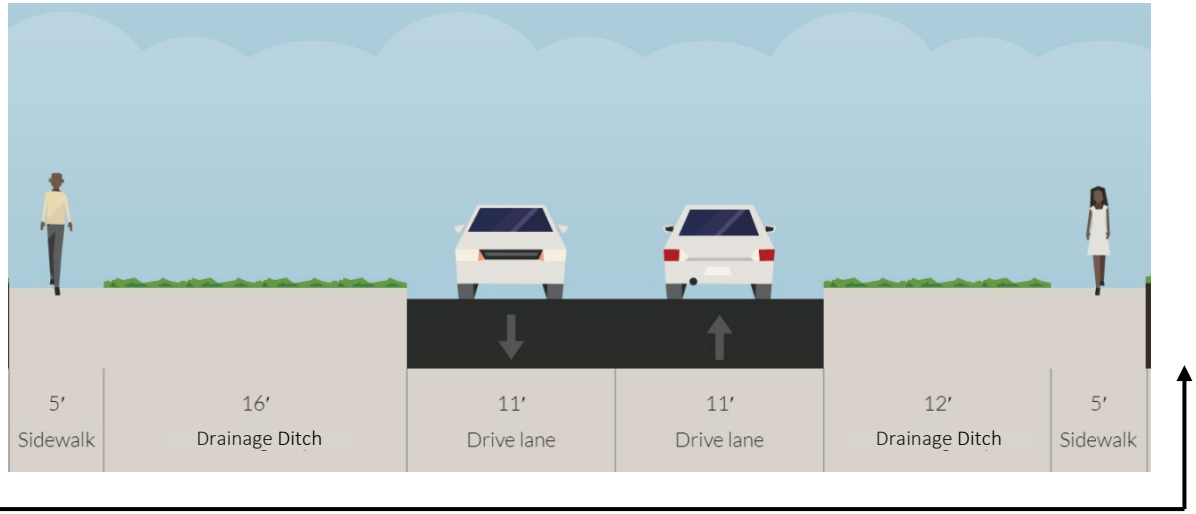
# Long-term Project Options



| Improvements | |
|---|---|
| MU | Multi-use Path |
| LI | Lighting |

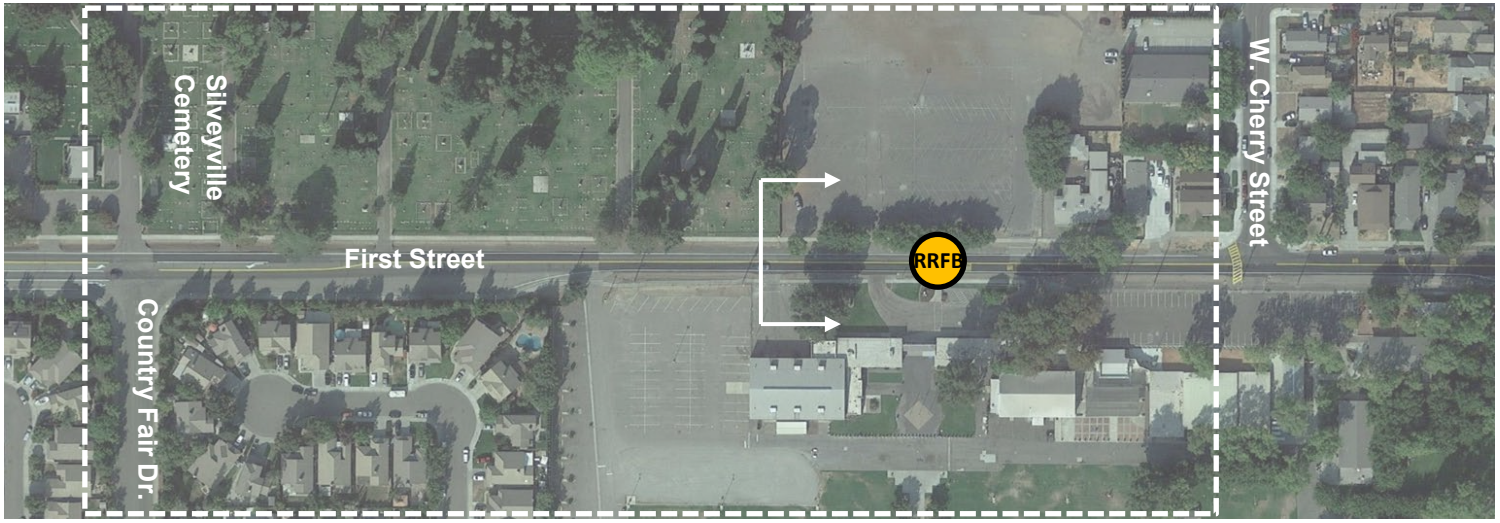
# Segment #3A - Between Country Fair Drive & West Cherry Street

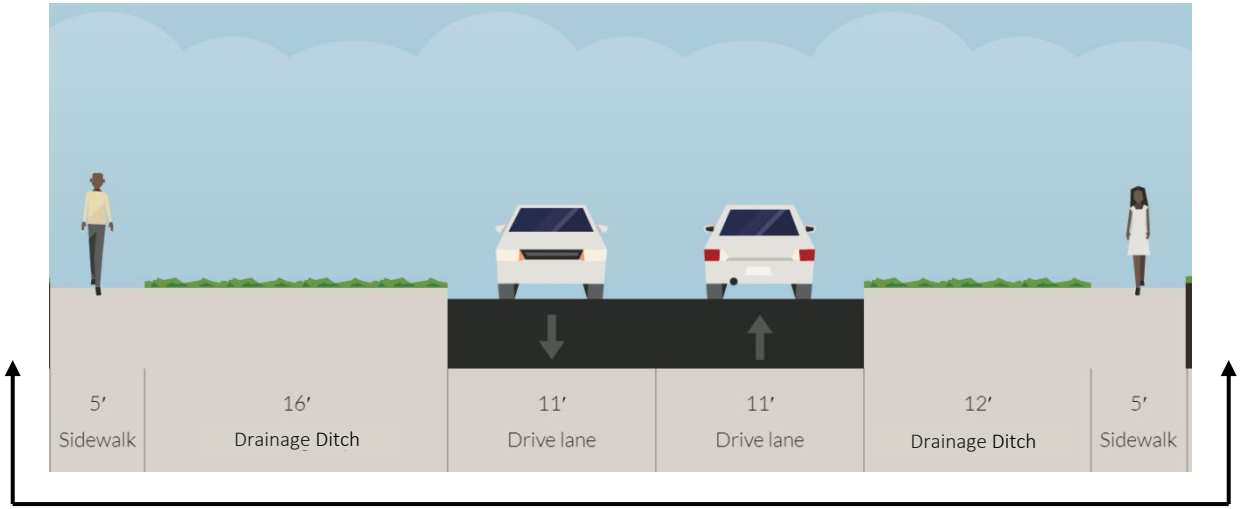



| Existing Conditions | |
|---|---|
| **General** | • Speed Limit is 30mph<br>• No lighting<br>• Gravel ditch on both sides of First Street<br>• Two-way left turn to be installed |
| **Bike** | • No bike lanes |
| **Pedestrian** | • Sidewalk on First Street NB and SB<br>• Crosswalk striping and School Zone between Dixon May Fair and parking lot<br>• Curb Ramps |

# Segment #3A - Between Country Fair Drive & West Cherry Street




| Short-Term Project Options | |
|---|---|
| **Pedestrian** | • Install rapid flashing beacon |

**Legend**

RRFB — Rectangular Rapid Flashing Beacon (RRFB)

Note: See 3.1 - Improvement at Entrance of Dixon May Fair

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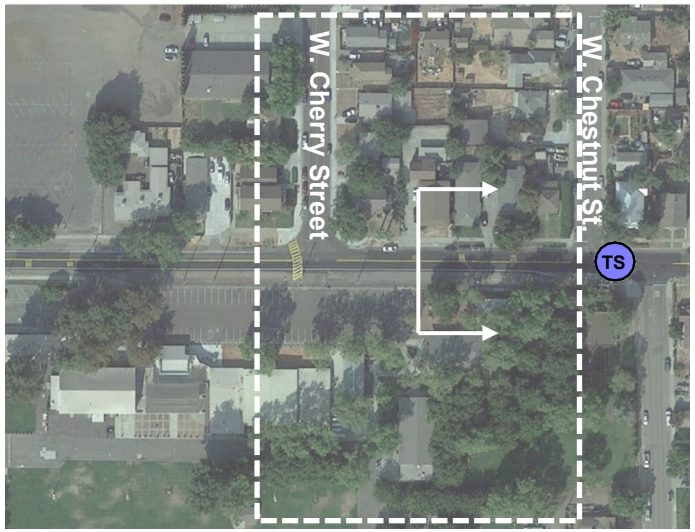
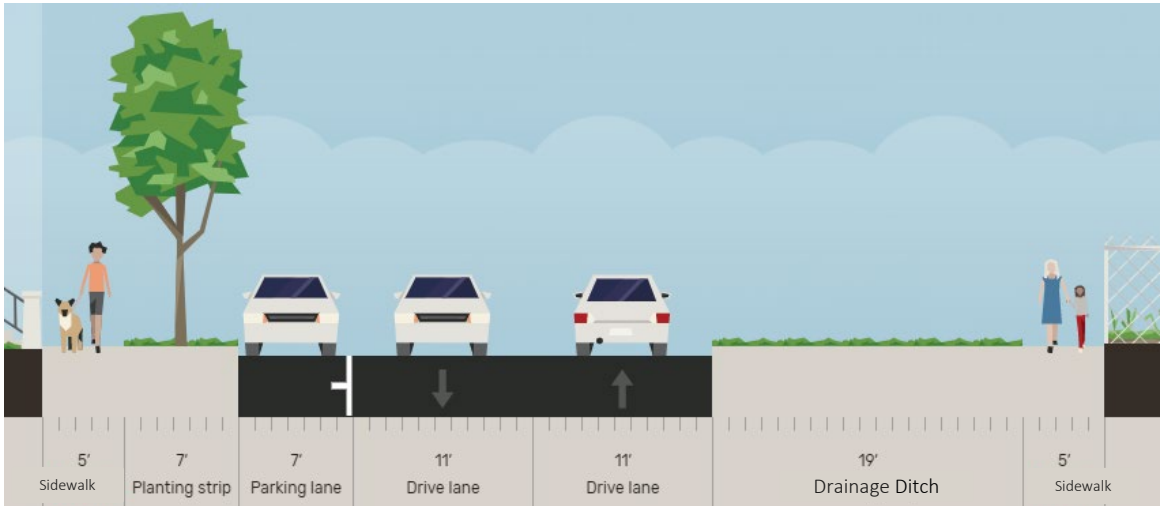
Short-term Project Options

# Segment #3B - Between West Cherry Street & West Chestnut Street

| Existing Conditions | |
|---|---|
| **General** | • Speed Limit is 30mph<br>• No lighting<br>• Gravel ditch on east side of First Street<br>• Parking on the west side of First Street |
| **Bike** | • No bike lanes |
| **Pedestrian** | • Sidewalk on First Street NB and SB<br>• Crosswalk striping across First Street at W. Cherry Street<br>• Curb Ramps |

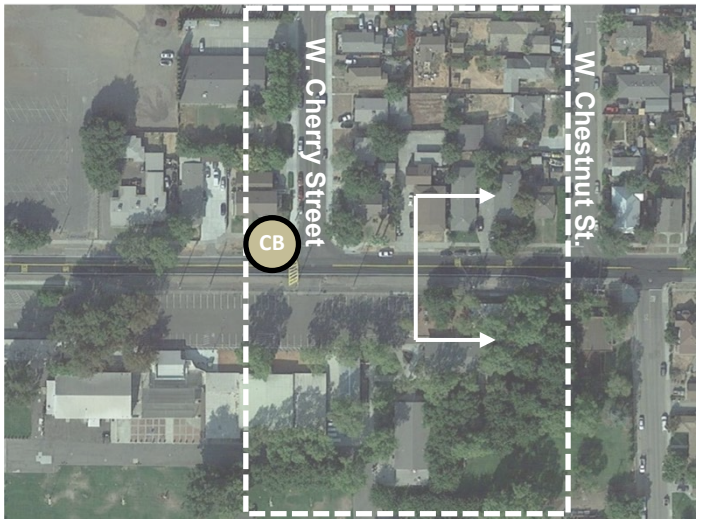


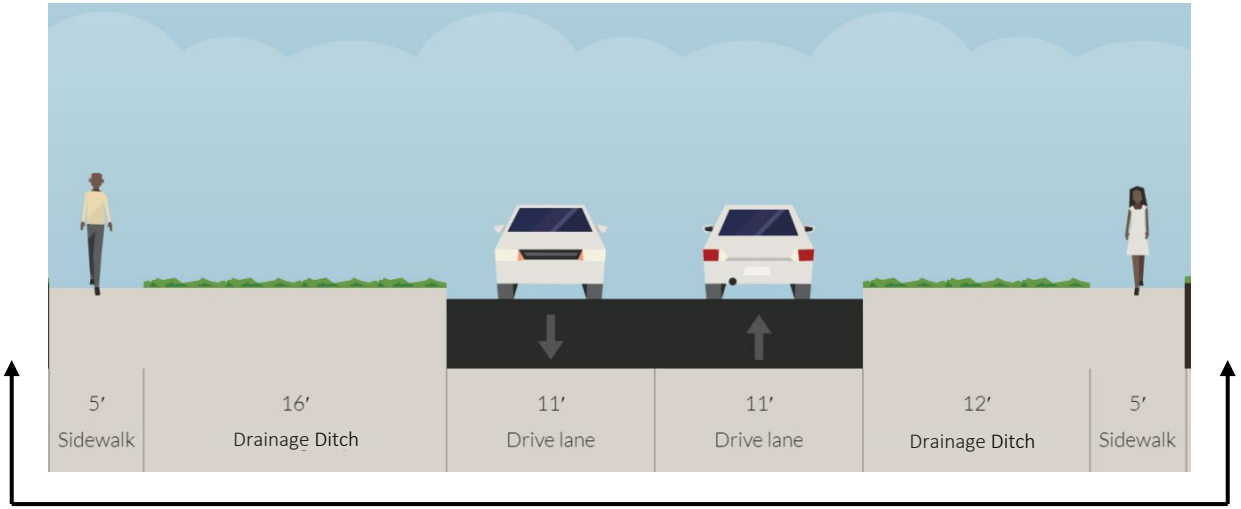




| Legend | |
|---|---|
| TS | Planned Traffic Signal |

# Segment #3B - Between West Cherry Street & West Chestnut Street

| Short-Term Project Options | |
|---|---|
| **Pedestrian** | • Install concrete bulb-out at SW corner of W. Cherry and First Street |



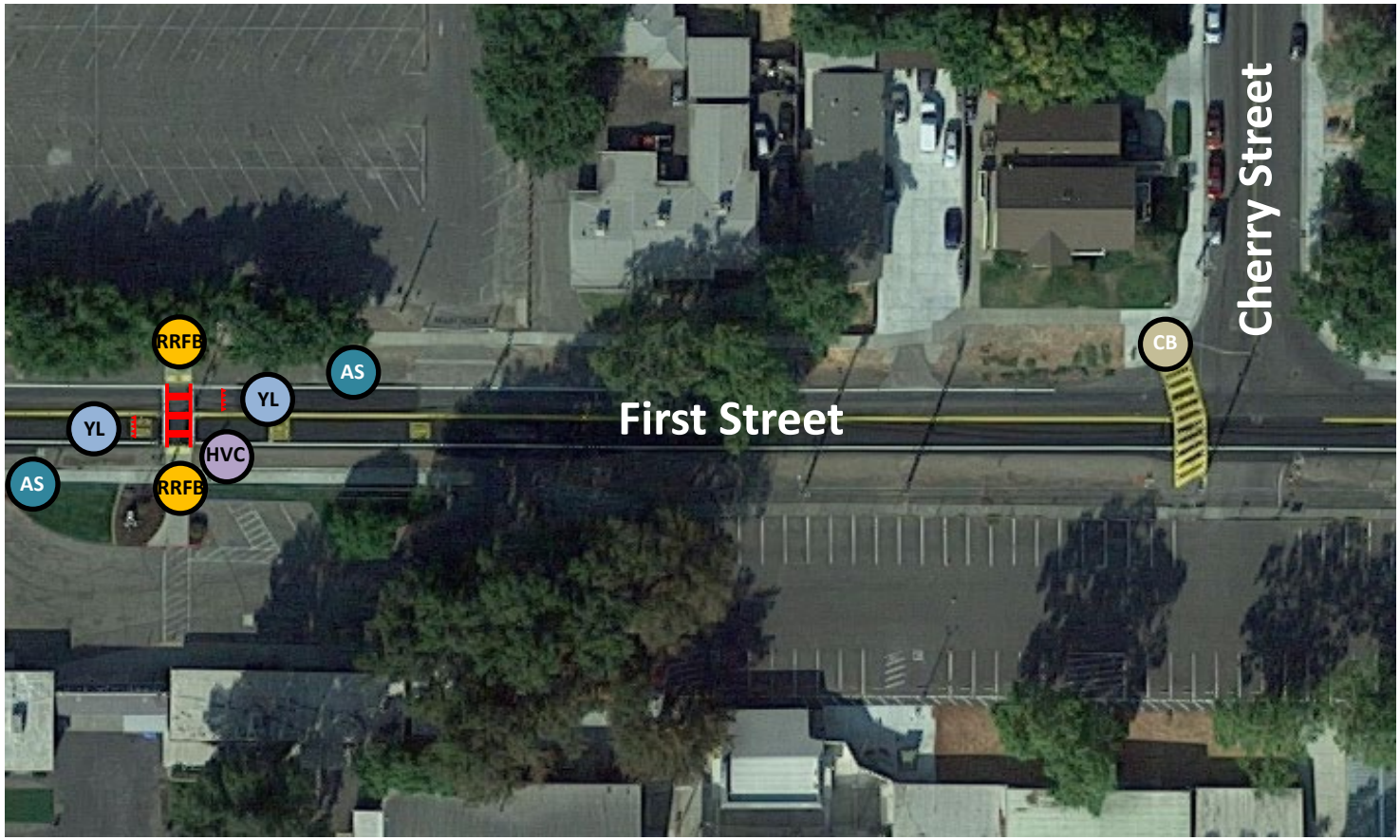




**Legend**

CB — Concrete Bulb-out

Note: See 3.1 - Improvement at Entrance of Dixon May Fair

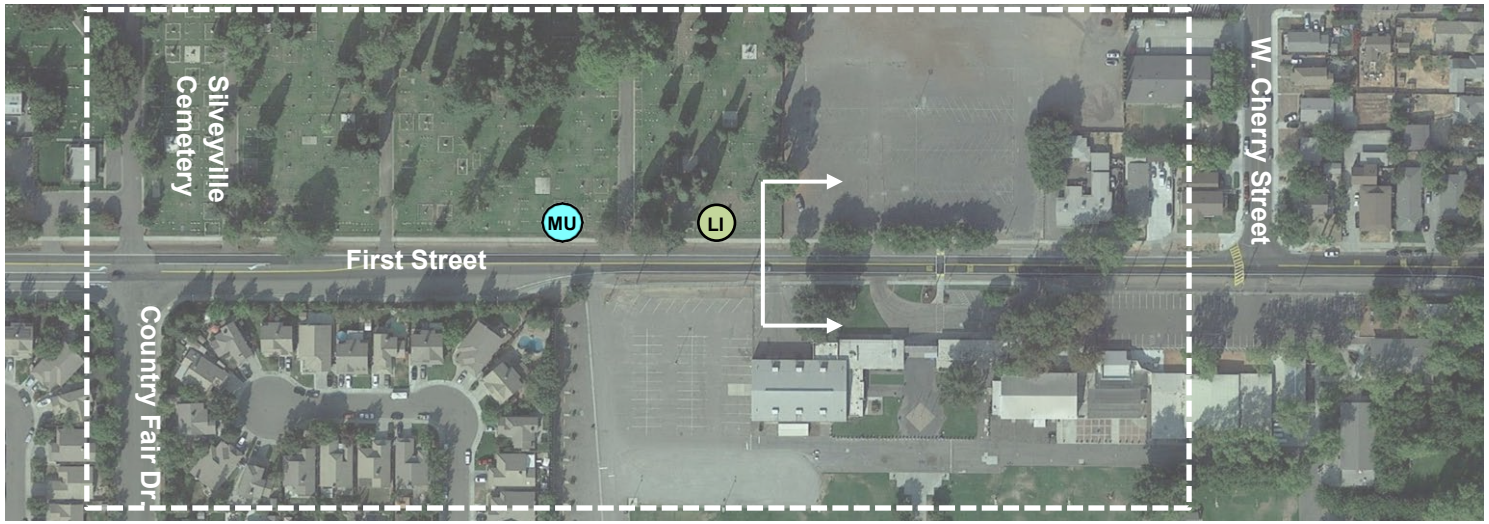
# Short-term Project Options – Segment 3A & 3B

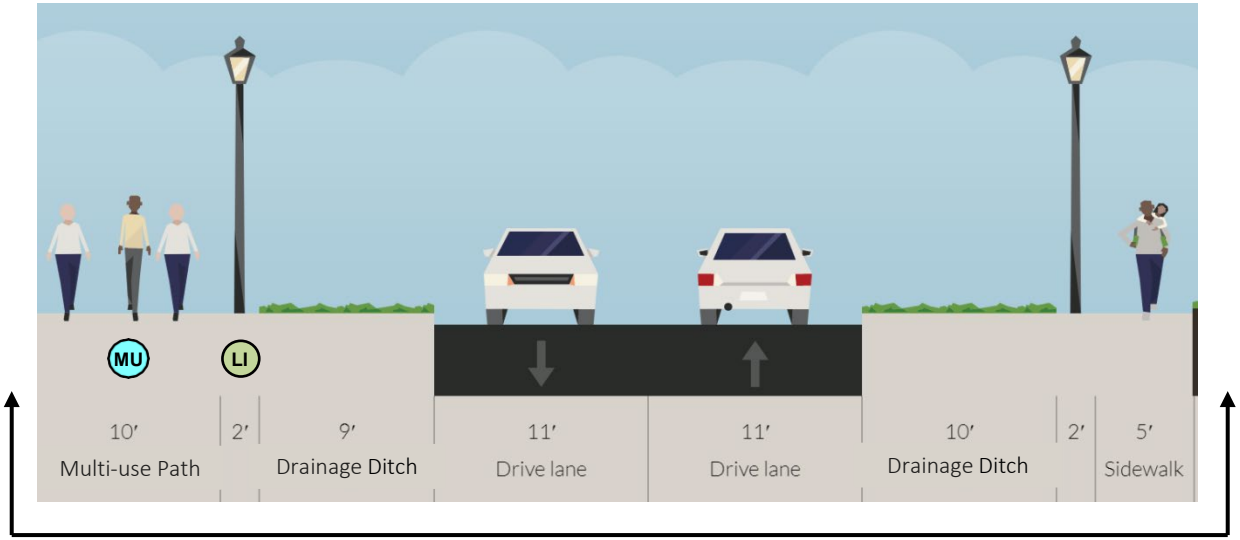



**Improvements**

- RRFB — RRFB System
- HVC — High Visibility Crosswalk
- YL — Yield Line with R1-5 Sign
- AS — Advance Sign
- CB — Concrete Bulb-out

# Segment #3A - Between Country Fair Drive & West Cherry Street



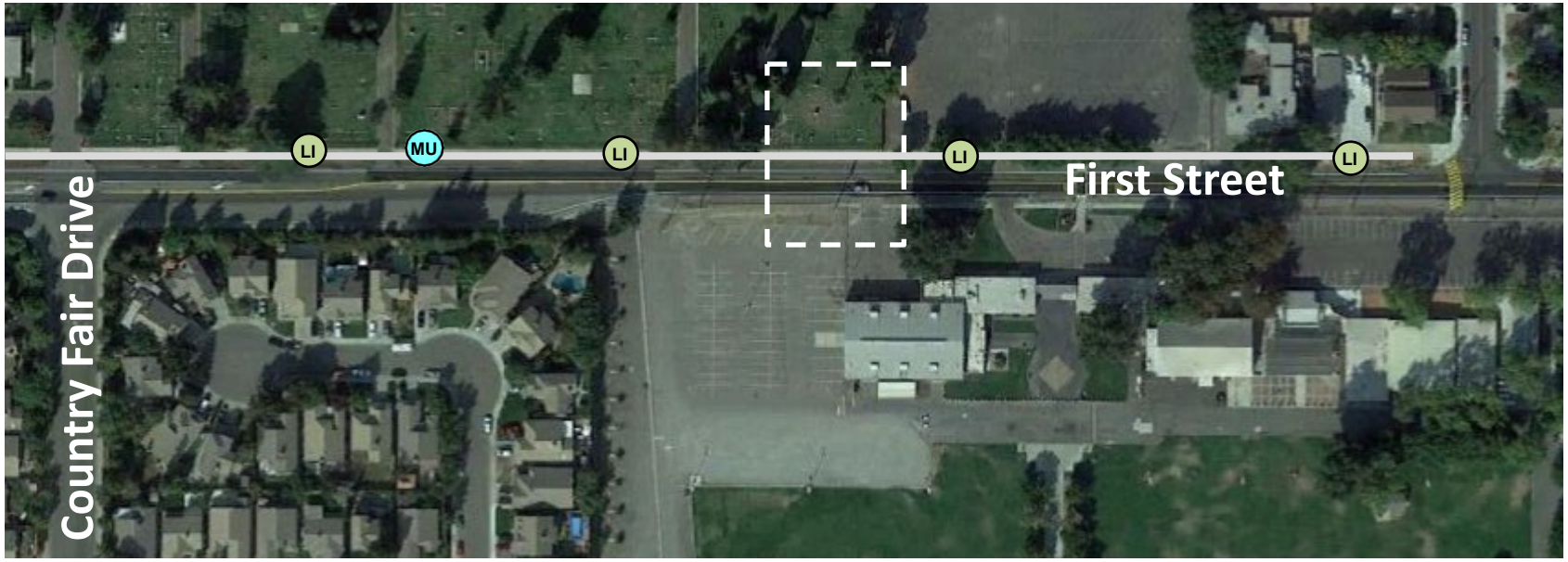

| Long-Term Project Options | |
|---|---|
| **Bike** | • Install Multi-use Pathway along west-side |
| **Pedestrian** | • Install pedestrian streetlight |

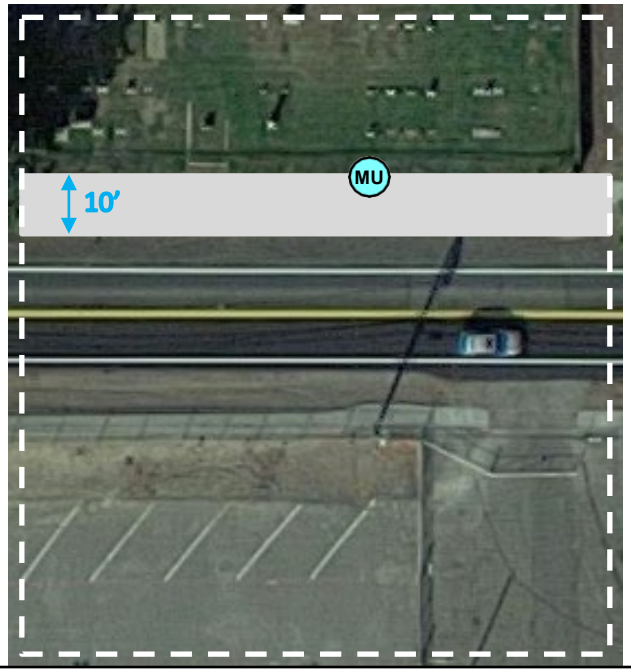
**Legend**

- LI — Lighting
- MU — Multi-use Path

Note: See 3.2 – Improvement between County Fair Drive and Cherry Street

# Long-term Project Options – Segment 3A




| Improvements | |
|---|---|
| MU | Multi-use Path |
| LI | Lighting |

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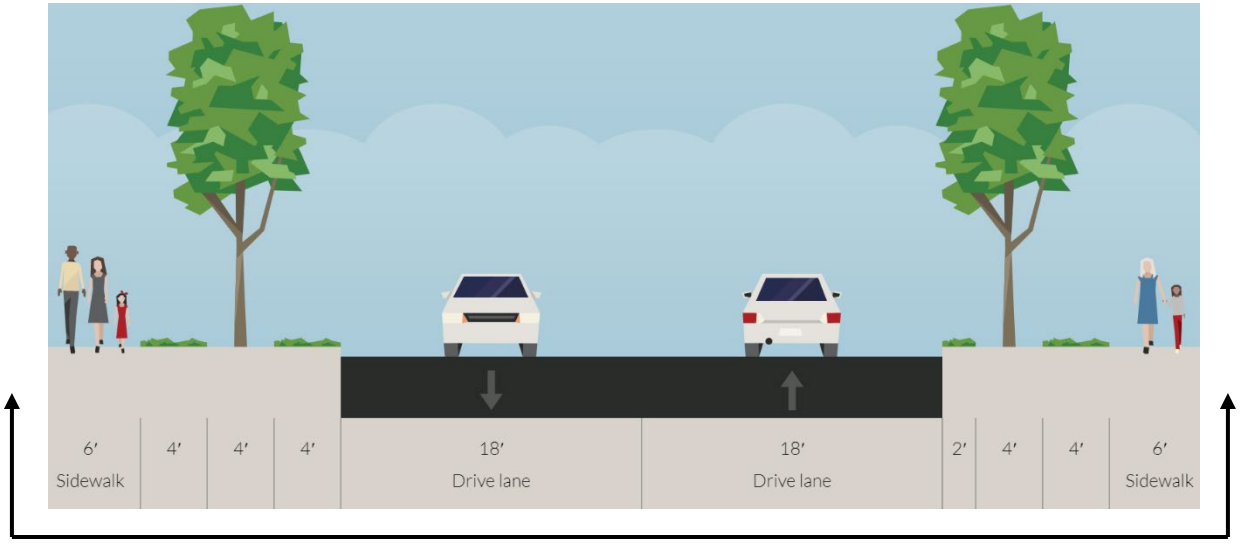
3.2 – Improvement between Country Fair Drive and Cherry Street

# Segment #4 - Between West Chestnut Street & Mayes Street


| Existing Conditions | |
|---|---|
| **General** | • Speed Limit is 25 mph<br>• Drive lanes are also used for parking<br>• Good pavement condition |
| **Bike** | • No bike lanes |
| **Pedestrian** | • Sidewalk on both sides of 1st Street<br>• Curb Ramps |

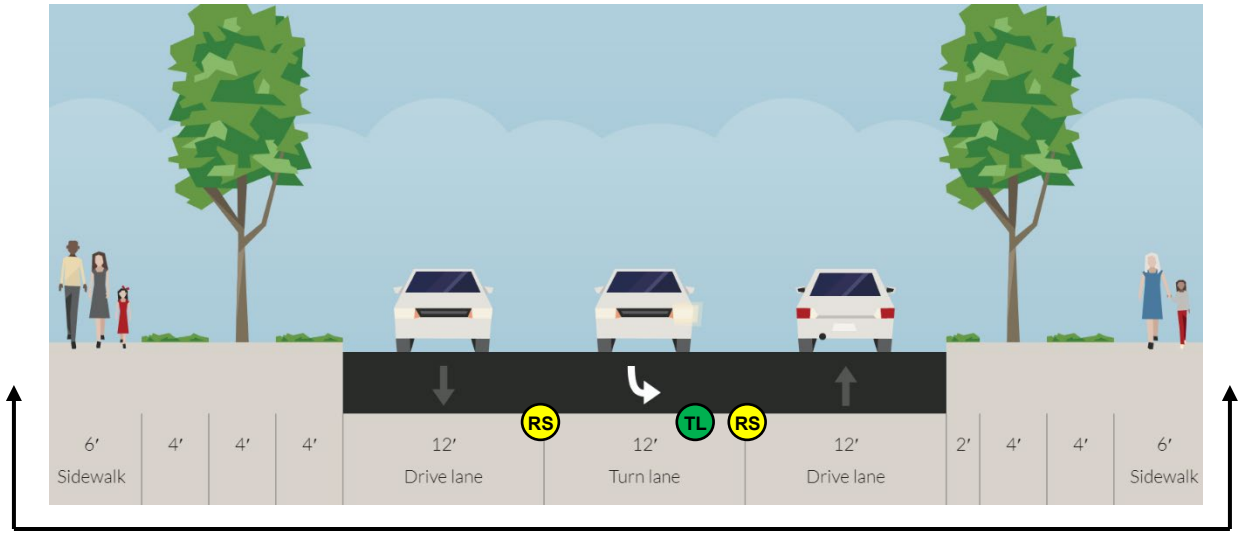
| Legend | |
|---|---|
| TS | Planned Traffic Signal |



# Segment #4 - Between West Chestnut Street & Mayes Street


| Short-Term Project Options | |
|---|---|
| **General** | • Restripe First Street to include left turn lane onto E. Chestnut Street |

| Legend | |
|---|---|
| RS | Restriping |
| TL | Turn Lane |

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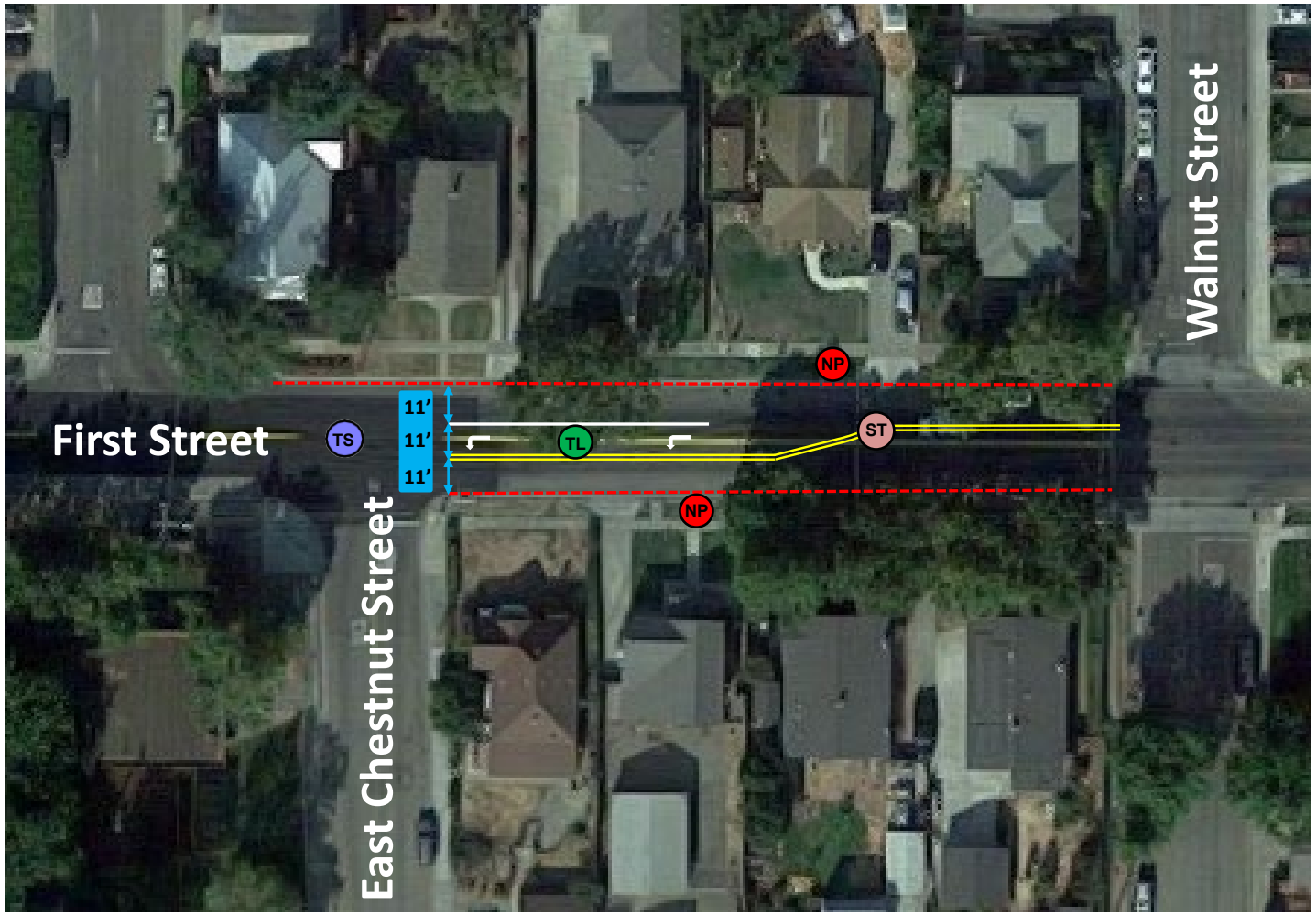
Short-term Project Options - Alternative A

# Short-term Project Options - Alternative A



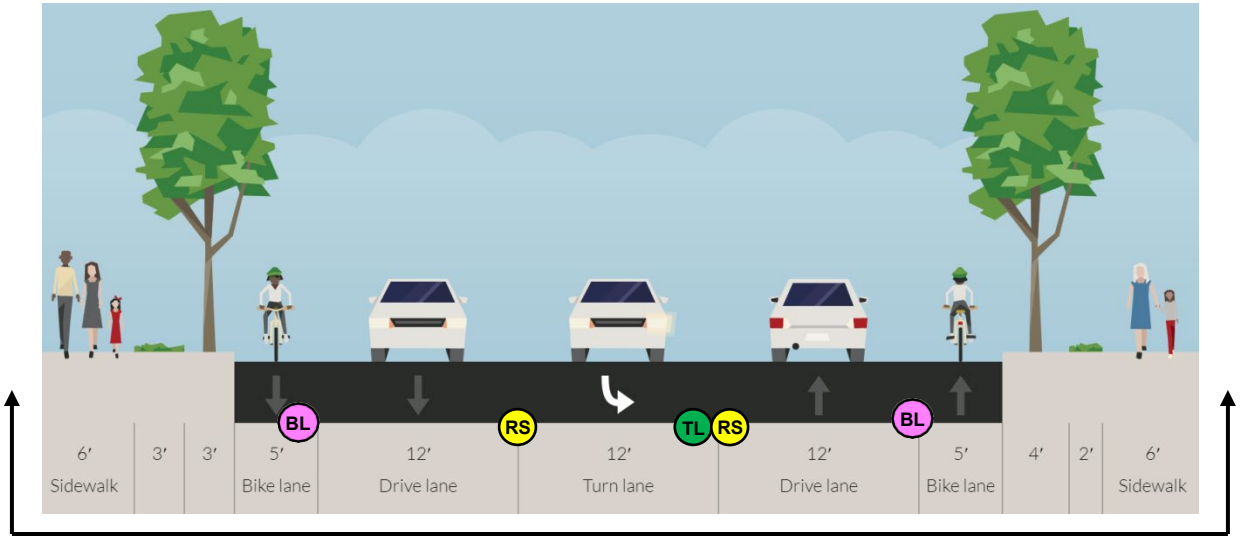

**Improvements**

- TS — Planned Traffic Signal
- ST — Thermoplastic Striping
- TL — Left-Turn Pavement Markings
- NP — No Parking Zone

# Segment #4 - Between West Chestnut Street & Mayes Street


| Short-Term Project Options | |
|---|---|
| **General** | • Restripe First Street to include left turn lane onto E. Chestnut Street |
| **Bike** | • Install 5' Class II Bike Lane on both sides of First Street |

| Legend | |
|---|---|
| BL | Bike Lane |
| RS | Restriping |
| TL | Turn Lane |

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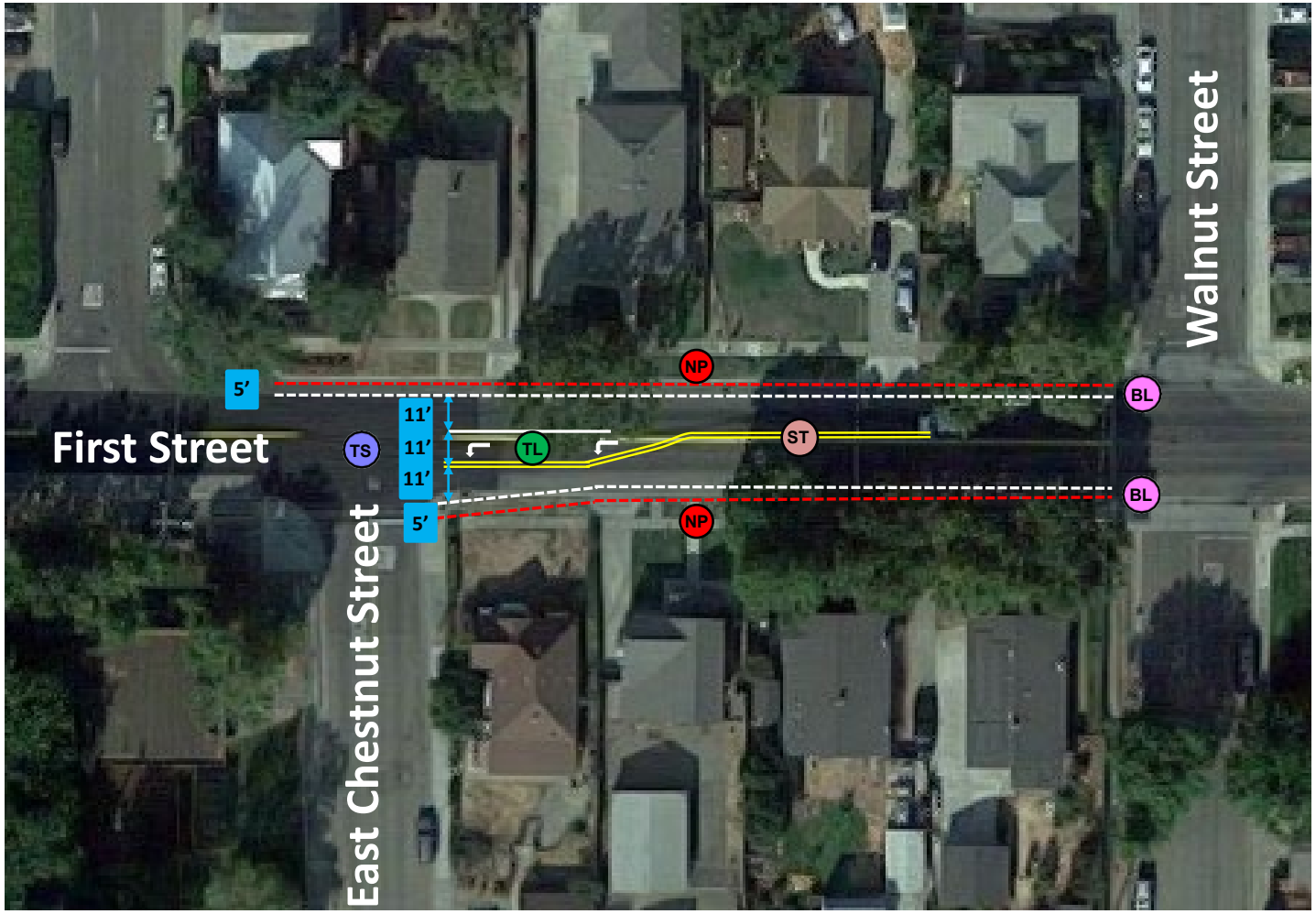
Short-Term Project Options - Alternative B

# Short-term Project Options - Alternative B

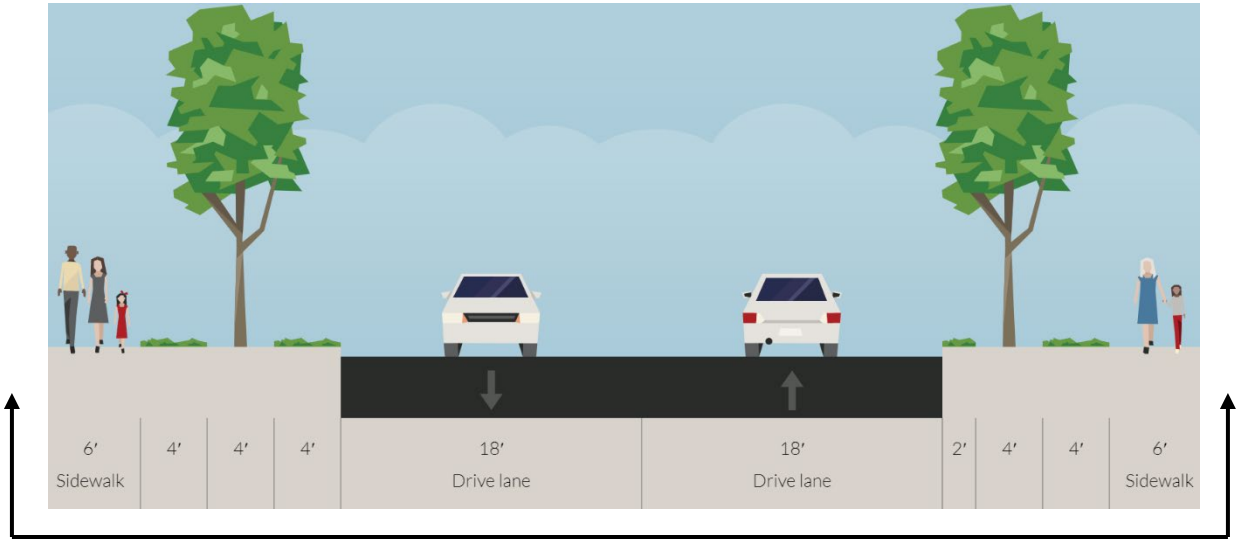



**Improvements**

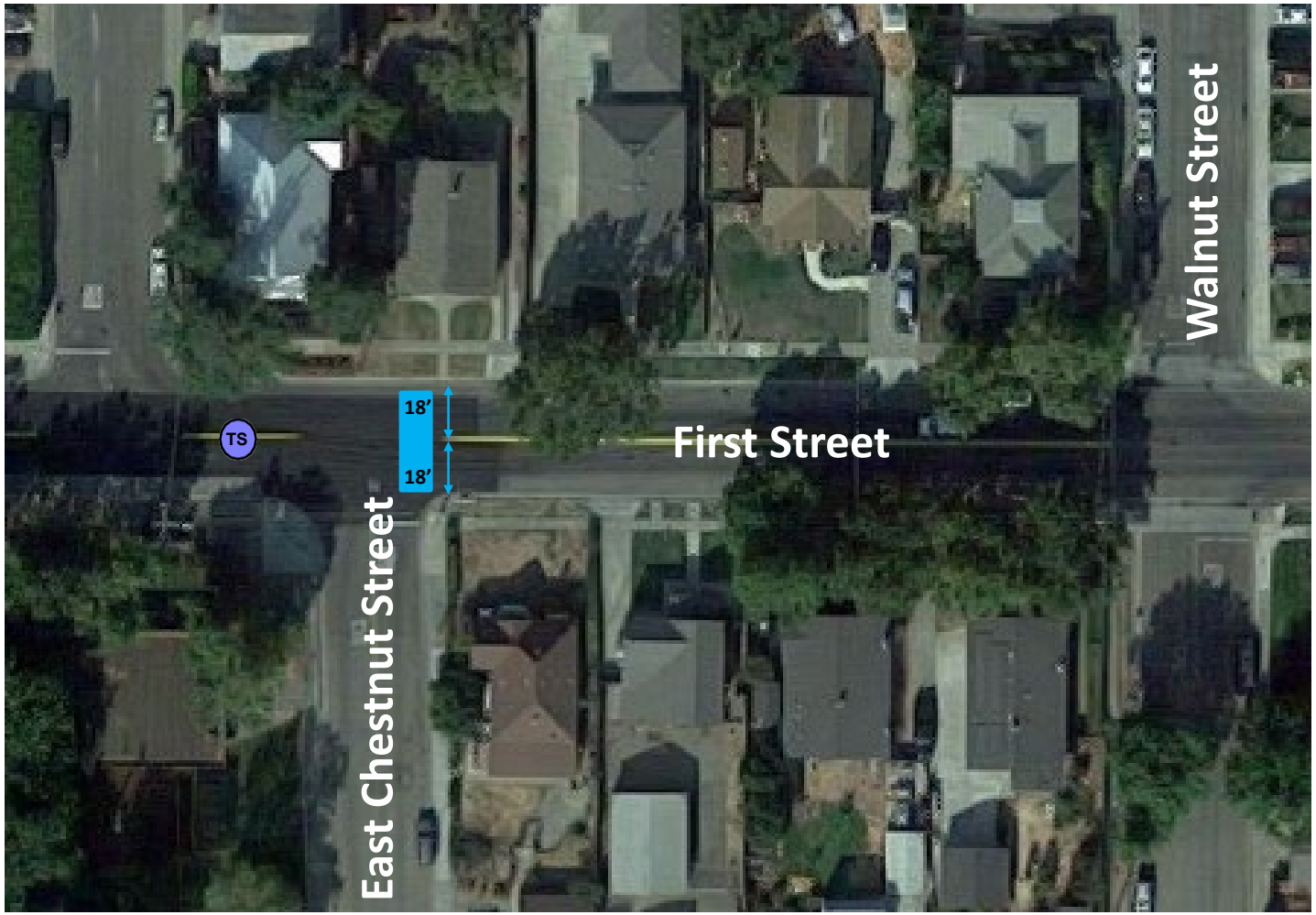
- TS — Planned Traffic Signal
- ST — Thermoplastic Striping
- TL — Left-Turn Pavement Markings
- NP — No Parking Zone
- BL — Class II Bike Lane

# Segment #4 - Between West Chestnut Street & Mayes Street


| Improvements | |
|---|---|
| TS | Planned Traffic Signal |



# Short-term Project Options - Alternative C (No Change)

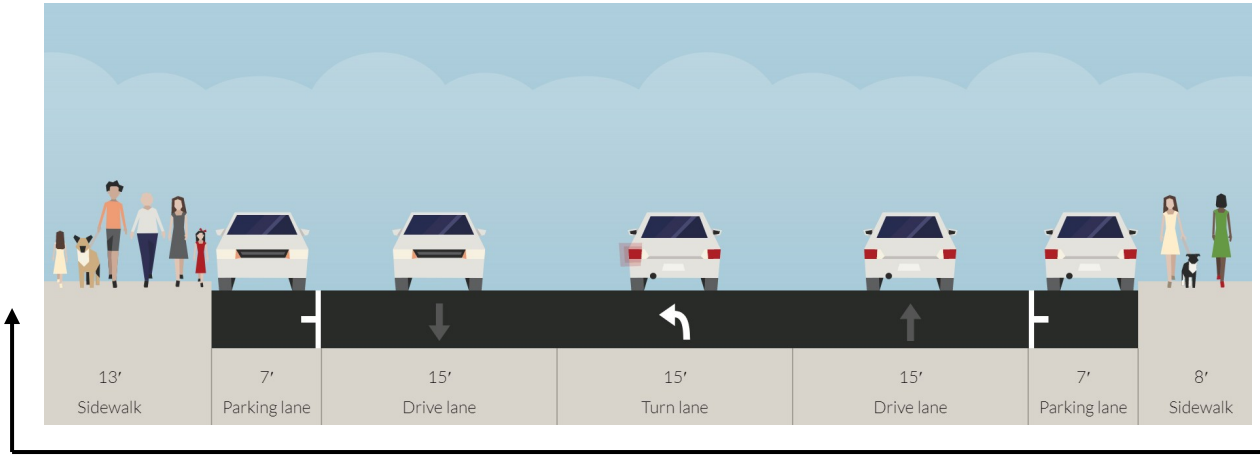



**Improvements**

TS — Planned Traffic Signal

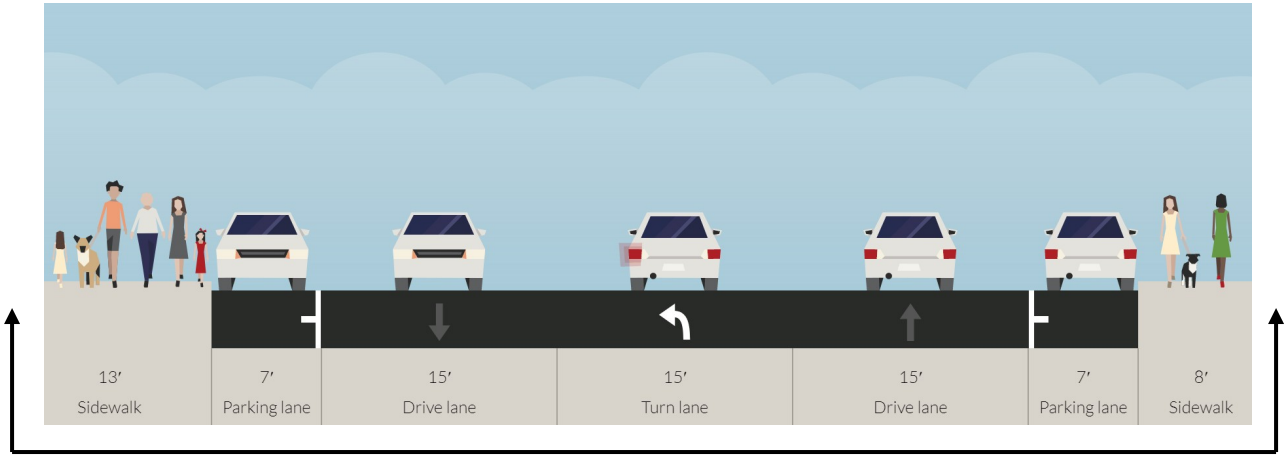
# Segment #5 - Between Mayes Street and A Street


| Existing Conditions | |
|---|---|
| **General** | • Speed Limit is 25mph<br>• Parking lane on both sides of First Street<br>• Parking lane on First Street SB becomes a 45 ft loading zone 100 ft after A Street<br>• Pavement condition is good |
| **Bike** | • No Bike lanes |
| **Pedestrian** | • Sidewalk on both sides of First Street<br>• Curb Ramps<br>• Crosswalk along Mayes Street and A Street |



# Segment #5 - Between Mayes Street and A Street

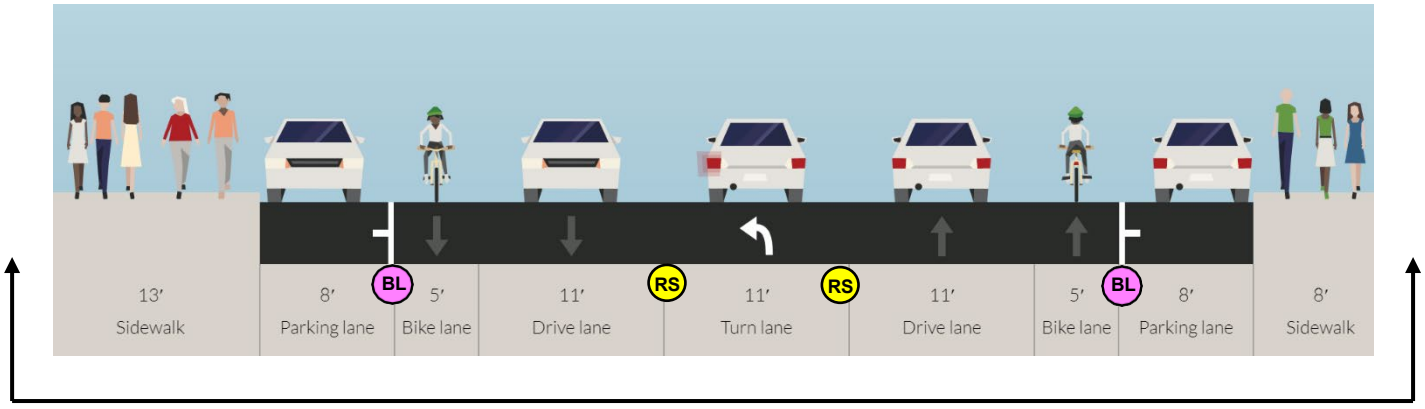

| Improvements |
| --- |
| None – see existing conditions |



# Segment #5 - Between Mayes Street and A Street


| Short-Term Project Options | |
|---|---|
| **General** | • Restripe First Street to narrow lanes |
| **Bike** | • Install 5' Class II Bike Lane on both sides of First Street |

| Legend | |
|---|---|
| RS | Restriping |
| BL | Bike Lane |

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Long Term Project Option B

# APPENDIX B –COST ESTIMATES

Project: Segment #1 - Between Parkway Blvd & Valley Glen Drive
Scenario: Long Term Recommendation
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 8,404.00 | **1** | **$ 8,404.00** |
| 2 | Mobilization | LS | $ 7,640.00 | **1** | **$ 7,640.00** |
| 3 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **4800** | **$ 24,000.00** |
| 4 | Furnish and Install Buffered Bike Lane with Flexible Posts | LF | $ 5.00 | **1600** | **$ 8,000.00** |
| 5 | Remove Existing Concrete Median | SF | $ 10.00 | **600** | **$ 6,000.00** |
| 6 | Install Curb and Gutter | LF | $ 50.00 | **300** | **$ 15,000.00** |
| 7 | Remove Existing Striping | LF | $ 3.00 | **4800** | **$ 14,400.00** |
| 8 | Install Pavement Marking | EA | $ 500.00 | **10** | **$ 5,000.00** |
| 9 | Remove Pavement Marking | EA | $ 500.00 | **8** | **$ 4,000.00** |
| | | | | **Subtotal:** | **$ 92,444** |
| | | | | **Contingency (25%):** | **$ 19,100** |
| | | | | **Total:** | **$ 111,544** |

Project: Segment #2 - Between Valley Glen Drive & Country Fair Drive
Scenario: Long Term Recommendation
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 15,059.00 | **1** | **$ 15,059.00** |
| 2 | Mobilization | LS | $ 13,690.00 | **1** | **$ 13,690.00** |
| 3 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **3500** | **$ 17,500.00** |
| 4 | Furnish and Install Buffered Bike Lane with Flexible Posts | LF | $ 5.00 | **1400** | **$ 7,000.00** |
| 5 | Adjust Drainage | LF | $ 200.00 | **300** | **$ 60,000.00** |
| 6 | Install Asphalt Concrete Pavement | SF | $ 5.00 | **3600** | **$ 18,000.00** |
| 7 | Install Curb and Gutter | LF | $ 50.00 | **300** | **$ 15,000.00** |
| 8 | Remove Existing Striping | LF | $ 3.00 | **4800** | **$ 14,400.00** |
| 9 | Install Pavement Marking | EA | $ 500.00 | **6** | **$ 3,000.00** |
| 10 | Remove Pavement Marking | EA | $ 500.00 | **4** | **$ 2,000.00** |
| | | | | **Subtotal:** | **$ 165,649** |
| | | | | **Contingency (25%):** | **$ 34,225** |
| | | | | **Total:** | **$ 199,874** |

Project: Segment #3 - Between Country Fair Drive & West Chestnut Street
Scenario: Short Term Recommendation
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 3,817.00 | **1** | **$ 3,817.00** |
| 2 | Mobilization | LS | $ 3,470.00 | **1** | **$ 3,470.00** |
| 3 | Furnish & Install Type 1-B Pole on new foundation | EA | $ 6,000.00 | **2** | **$ 12,000.00** |
| 4 | Furnish & Install Solar RRFB System | EA | $ 8,000.00 | **2** | **$ 16,000.00** |
| 5 | Furnish & Install Sign on RRFB | EA | $ 500.00 | **6** | **$ 3,000.00** |
| 6 | Furnish & Install Advance Sign | EA | $ 500.00 | **2** | **$ 1,000.00** |
| 7 | Furnish & Install Telespar Post | EA | $ 300.00 | **2** | **$ 600.00** |
| 8 | Furnish & Install W11-2 Sign | EA | $ 500.00 | **2** | **$ 1,000.00** |
| 9 | Furnish and Install Thermoplastic Crosswalk | SF | $ 5.00 | **220** | **$ 1,100.00** |
| | | | | **Subtotal:** | **$ 41,987** |
| | | | | **Contingency (25%):** | **$ 8,675** |
| | | | | **Total:** | **$ 50,662** |

Project: Segment #3 - Between Country Fair Drive & West Chestnut Street
Scenario: Long Term Recommendation
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 68,860.00 | **1** | **$ 68,860.00** |
| 2 | Mobilization | LS | $ 62,600.00 | **1** | **$ 62,600.00** |
| 3 | Remove Trees | EA | $ 5,000.00 | **10** | **$ 50,000.00** |
| 4 | Adjust Drainage | LF | $ 200.00 | **1860** | **$ 372,000.00** |
| 5 | Furnish & Install LED Luminaire | EA | $ 600.00 | **4** | **$ 2,400.00** |
| 6 | Install Light Pole and Foundation | EA | $ 25,000.00 | **4** | **$ 100,000.00** |
| 7 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **2000** | **$ 10,000.00** |
| 8 | Furnish and Install Thermoplastic Crosswalk | LF | $ 5.00 | **220** | **$ 1,100.00** |
| 9 | Install Signage | EA | $ 500.00 | **6** | **$ 3,000.00** |
| 10 | Install Pavement Marking | EA | $ 500.00 | **2** | **$ 1,000.00** |
| 11 | Install Asphalt Concrete Pavement | SF | $ 5.00 | **9300** | **$ 46,500.00** |
| 12 | Roadwork/Excavation | CY | $ 300.00 | **100** | **$ 30,000.00** |
| 13 | Remove landscaping | SF | $ 20.00 | **500** | **$ 10,000.00** |
| | | | | **Subtotal:** | **$ 757,460** |
| | | | | **Contingency (25%):** | **$ 156,500** |
| | | | | **Total:** | **$ 913,960** |

Project: Segment #4 - Between West Chestnut Street & Mayes Street
Scenario: Short Term Recommendation A
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 1,617.00 | **1** | **$ 1,617.00** |
| 2 | Mobilization | LS | $ 1,470.00 | **1** | **$ 1,470.00** |
| 3 | Furnish and Install No Parking Signs | EA | $ 500.00 | **8** | **$ 4,000.00** |
| 4 | Paint Red Curb for No Parking | LF | $ 3.00 | **500** | **$ 1,500.00** |
| 5 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **1025** | **$ 5,125.00** |
| 6 | Furnish and Install Arrows | EA | $ 500.00 | **2** | **$ 1,000.00** |
| 7 | Remove Existing Striping | LF | $ 3.00 | **1025** | **$ 3,075.00** |
| | | | | **Subtotal:** | **$ 17,787** |
| | | | | **Contingency (25%):** | **$ 3,675** |
| | | | | **Total:** | **$ 21,462** |

Project: Segment #4 - Between West Chestnut Street & Mayes Street
Scenario: Short Term Recommendation B
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 9,444.00 | **1** | **$ 9,444.00** |
| 2 | Mobilization | LS | $ 7,870.00 | **1** | **$ 7,870.00** |
| 3 | Furnish and Install No Parking Signs | EA | $ 500.00 | **8** | **$ 4,000.00** |
| 4 | Paint Red Curb for No Parking | LF | $ 3.00 | **500** | **$ 1,500.00** |
| 5 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **1025** | **$ 5,125.00** |
| 6 | Furnish and Install Arrows | EA | $ 500.00 | **2** | **$ 1,000.00** |
| 7 | Install Hot Mix Asphalt (2") | SF | $ 10.00 | **300** | **$ 3,000.00** |
| 8 | Install Curb and Gutter | LF | $ 50.00 | **60** | **$ 3,000.00** |
| 9 | Install ADA Curb Ramp | EA | $ 5,000.00 | **1** | **$ 5,000.00** |
| 10 | Remove Curb and Gutter | LF | $ 20.00 | **50** | **$ 1,000.00** |
| 11 | Remove Landscaping | SF | $ 5.00 | **250** | **$ 1,250.00** |
| 12 | Remove Concrete Ramp | SF | $ 20.00 | **70** | **$ 1,400.00** |
| 13 | Adjust Drainage Inlet | LS | $ 10,000.00 | **1** | **$ 10,000.00** |
| 14 | Remove Existing Striping | LF | $ 3.00 | **1025** | **$ 3,075.00** |
| | | | | **Subtotal:** | **$ 56,664** |
| | | | | **Contingency (25%):** | **$ 9,838** |
| | | | | **Total:** | **$ 66,502** |

Project: Segment #5- Between Mayes Street & A Street
Scenario: Long Term Recommendation
Date: August 22, 2019
Author: DKS

| Cost Item No. | Cost Item Description | Unit | Unit Cost | Total Quantity | Total Cost |
|---|---|---|---|---|---|
| 1 | Traffic control | LS | $ 2,860.80 | **1** | **$ 2,860.80** |
| 2 | Mobilization | LS | $ 2,384.00 | **1** | **$ 2,384.00** |
| 3 | Furnish and Install Thermoplastic Striping | LF | $ 5.00 | **1800** | **$ 9,000.00** |
| 4 | Remove Existing Striping | LF | $ 3.00 | **640** | **$ 1,920.00** |
| 5 | Install Left Lane Arrow Pavement Marking | EA | $ 500.00 | **2** | **$ 1,000.00** |
| | | | | **Subtotal:** | **$ 17,165** |
| | | | | **Contingency (25%):** | **$ 2,980** |
| | | | | **Total:** | **$ 20,145** |