### **MEMORANDUM**

Subject:	6 <sup>th</sup> Street Striping and Lane Configuration Alternatives
Date:	June 30, 2021
From:	Christian Heinbaugh, PE Kimley-Horn and Associates
To:	Xuan Wang, PHD, PE, PTP, RSP2 Regional Transportation Commission of Washoe County

As a supplement to the University Area Transportation Study // RTC 18-10 Final Report (final report), Kimley-Horn and Associates (Kimley-Horn) has prepared this memorandum to further investigate and summarize potential revisions to 6<sup>th</sup> Street from Sierra Street to Wells Avenue as discussed in the final report.

Kimley-Horn prepared four alternative conceptual level plans for converting this segment of 6<sup>th</sup> Street from a four travel lane road (two travel lanes in each direction) to a three travel lane road (one travel lane in each direction and a two way left turn lane) with bike lanes. The alternatives consider various road treatments ranging from slurry seal to full depth reclamation and various lane widths/configurations. Please note that many combinations and variations of these alternatives are feasible and further planning and design is needed to identify a preferred alternative.

The four conceptual level plan alternatives are as follows:

### Alternative 1: Slurry and Restripe 6th Street (Appendix A)

This alternative consists of a surface treatment (i.e. slurry seal or microsurface) to facilitate restriping 6<sup>th</sup> Street for the travel lane reduction and bike lane addition. It would create 12' travel lanes (eastbound, westbound, and a two way left turn lane), 5.5' bike lanes, and 9' parking lanes adjacent to the curb and gutter. Alternative 1 includes updates to existing pedestrian ramps for ADA conformance but generally does not modify the existing sidewalk or curb and gutter.

The Opinion of Probable Cost (OPC) that was developed for the final report was also reviewed as part of this supplemental effort and the preliminary cost estimate appears to be low as it did not consider traffic control requirements or signal modifications needed to accommodate the lane reconfiguration. The revised estimate for this alternative is approximately \$1 million; please see **Appendix A** for the revised estimate. OPCs include anticipated design, construction, and engineering during construction costs.

# Kimley *Whorn*

### Alternative 2: Reconstruct and Restripe 6th Street (Appendix B)

This alternative consists of reconstructing 6<sup>th</sup> Street (i.e. full depth reclamation or pulverization) to regrade and rebuild the roadway in addition to restriping for the travel lane reduction and bike lane addition. It would create 12' travel lanes (eastbound, westbound, and a two way left turn lane), 5.5' bike lanes, and 9' parking lanes adjacent to the curb and gutter. Alternative 2 includes replacement of sidewalk, curb and gutter, and the addition of bulb out pedestrian ramps to reduce crossing distance. Additional bulb outs are planned at existing utility poles to create sufficient pedestrian access around the poles.

The Opinion of Probable Cost (OPC) that was developed for the final report was also reviewed as part of this supplemental effort and the preliminary cost estimate is very low as it did not consider a rehabilitation treatment, sidewalk replacement, traffic control requirements, or signal modifications needed to accommodate the lane reconfiguration. The revised estimate for this alternative is approximately \$6.5-\$7 million, please see **Appendix B** for the revised estimate. OPCs include anticipated design, construction, and engineering during construction costs.

# Alternative 3: Slurry and Restripe 6th Street with Bike Lane Buffer (Appendix C)

This alternative consists of a surface treatment (i.e. slurry seal or microsurface) to facilitate restriping 6<sup>th</sup> Street for the travel lane reduction and bike lane addition. It would create 13' travel lanes (eastbound, westbound, and a two way left turn lane), 2.5' bike lane buffer (separating bike lanes from travel lanes), 5.5' bike lanes, and a 9' parking lane adjacent to the curb and gutter on the north side of 6<sup>th</sup> Street. Alternative 3 includes updates to existing pedestrian ramps for ADA conformance but generally does not modify the existing sidewalk or curb and gutter.

The Opinion of Probable Cost (OPC) that was developed for the final report was also reviewed as part of this supplemental effort and the preliminary cost estimate appears to be low as it did not consider traffic control requirements or signal modifications needed to accommodate the lane reconfiguration. The revised estimate for this alternative is approximately \$1 million; please see **Appendix C** for the revised estimate. OPCs include anticipated design, construction, and engineering during construction costs.

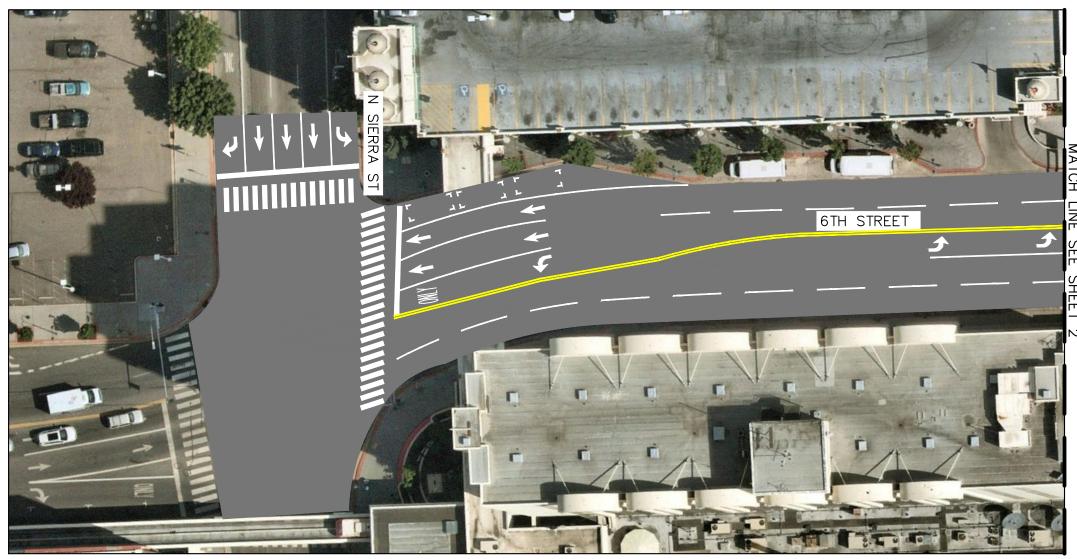
### Alternative 4: Slurry and Restripe 6th Street with Parking Lane Between Bike Lane and Travel Lane (Appendix D)

This alternative consists of a surface treatment (i.e. slurry seal or microsurface) to facilitate restriping 6<sup>th</sup> Street for the travel lane reduction and bike lane addition. It would create 11' travel lanes (eastbound, westbound, and a two way left turn lane), 8' parking lanes, 3' bike lane buffers (separating bike lanes from parking lanes), and 5' bike lanes adjacent to the curb and gutter.

Alternative 4 includes updates to existing pedestrian ramps for ADA conformance but generally does not modify the existing sidewalk or curb and gutter.

The Opinion of Probable Cost (OPC) that was developed for the final report was also reviewed as part of this supplemental effort and the preliminary cost estimate appears to be low as it did not consider traffic control requirements or signal modifications needed to accommodate the lane reconfiguration. The revised estimate for this alternative is just over \$1 million; please see **Appendix C** for the revised estimate.

Appendix A Alternative 1: Slurry and Restripe 6th Street Page 4



NOTE: NO STRIPING CHANGES PROPOSED ON THIS SHEET.



 SLURRY AND RESTRIPE 6TH STREET
 FIGURE:

 SAFETY IMPROVEMENTS SCHEMATIC
 Improvements

 UNIVERSITY AREA TRANSPORTATION STUDY
 Improvements

 PROJECT:
 DATE:
 VERSION:

 092528011
 DECEMBER 1, 2020
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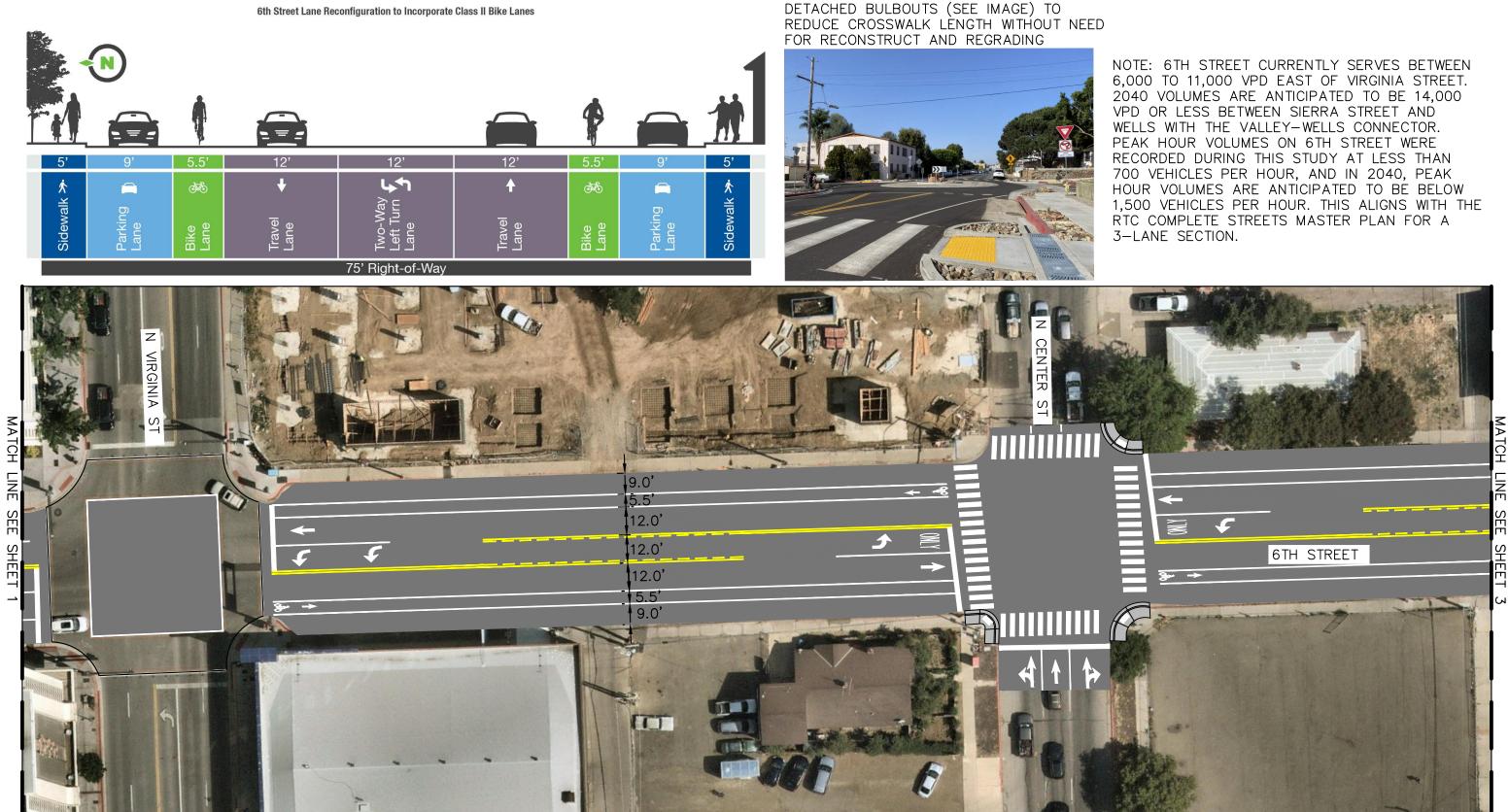
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PROJECT:

LOCATION:

IML

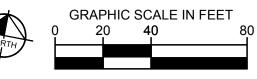
DRAWN:



NOTE: POTENTIAL OPTION TO ADD



5370 KIETZKE LANE, SUITE 100 RENO, NV 89511 PHONE: 775-200-1967 WWW.KIMLEY-HORN.COM



LEGEND:

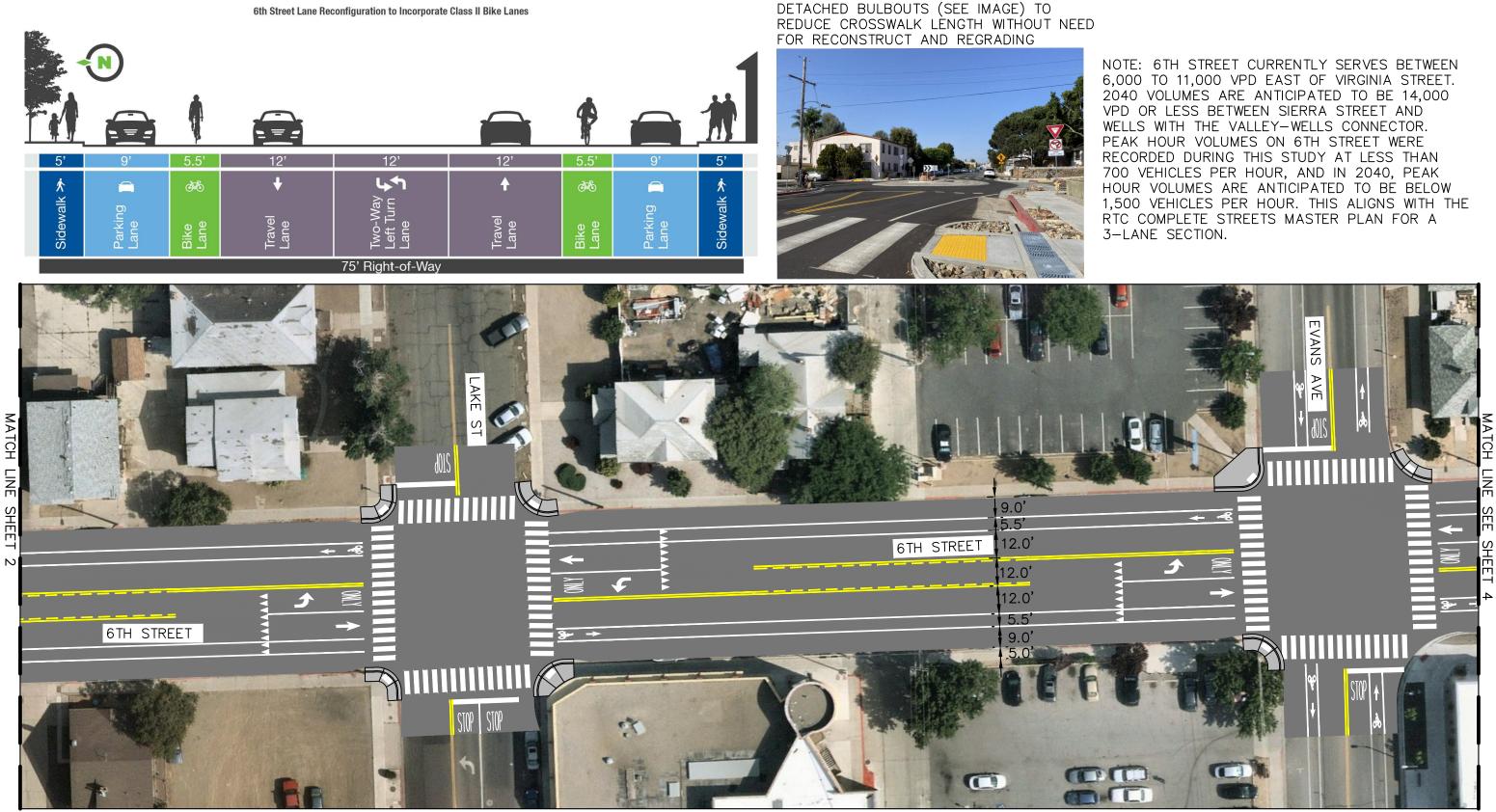
LIMITS OF SLURRY

PEDESTRIAN RAMP RECONSTRUCTION

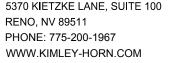
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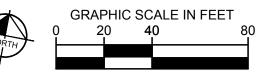
PROJECT: LOCATION:

SLURRY AND RESTRIPE 6TH STREET FIGURE: 2 SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION: DECEMBER 1, 2020 092528011 1A



NOTE: POTENTIAL OPTION TO ADD





LEGEND:

LIMITS OF SLURRY

PEDESTRIAN RAMP RECONSTRUCTION

TITLE:

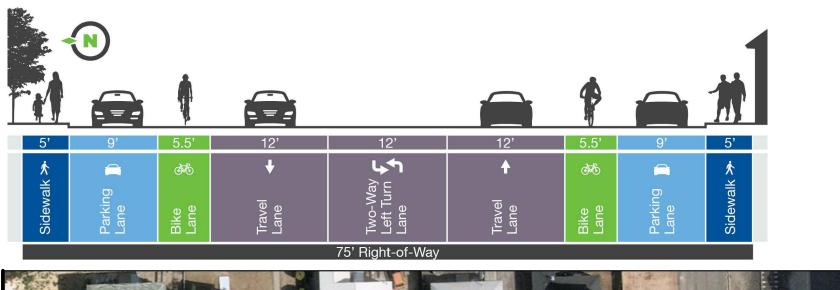
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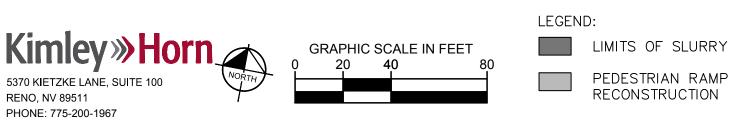
SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC  $\mathbf{O}$ J UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

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6th Street Lane Reconfiguration to Incorporate Class II Bike Lanes







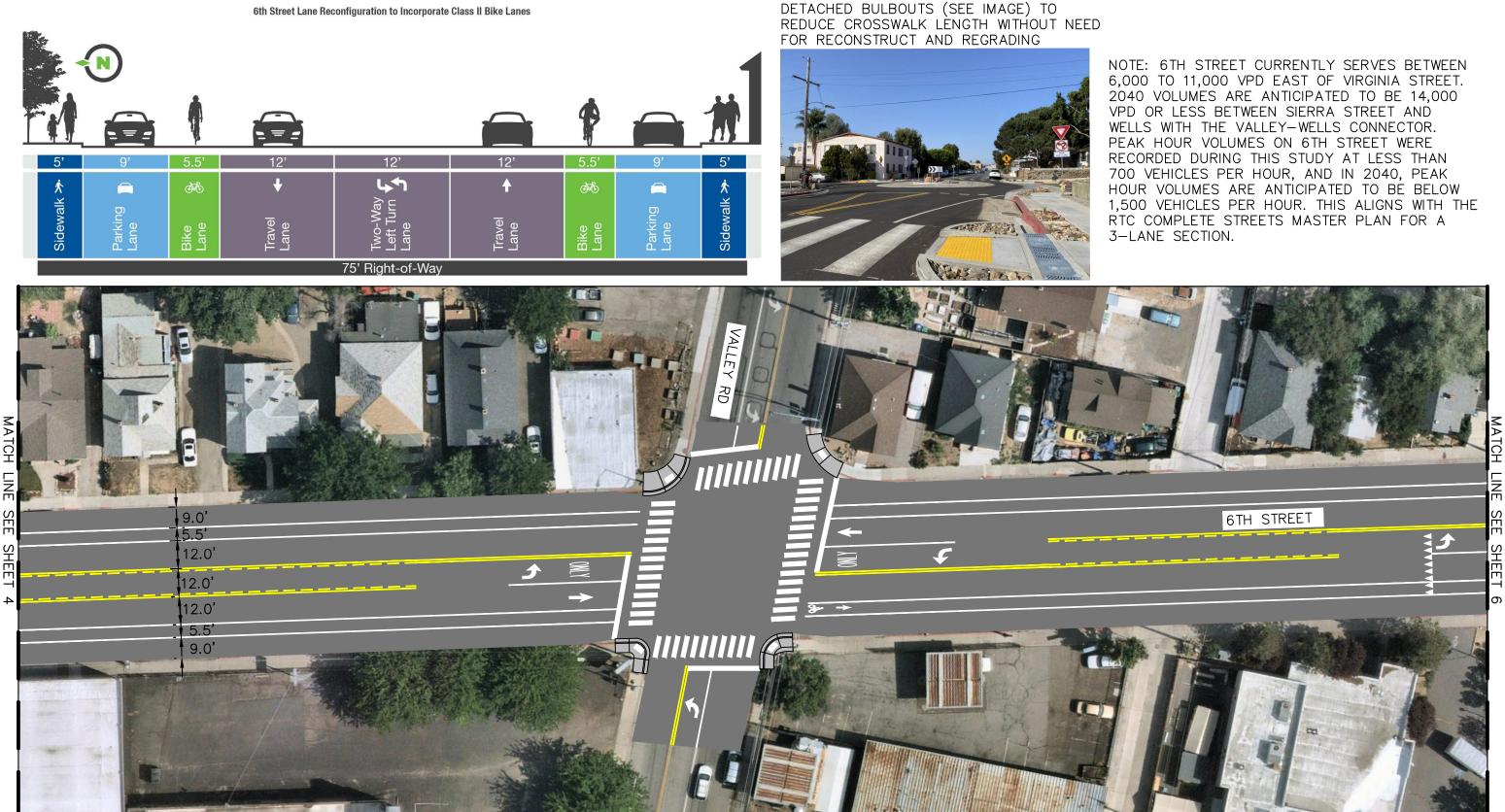
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SLURRY AND REST SAFETY IMPROVEM UNIVERSITY AREA RENO, NV		FIGURE:
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NOTE: POTENTIAL OPTION TO ADD



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LEGEND:

LIMITS OF SLURRY

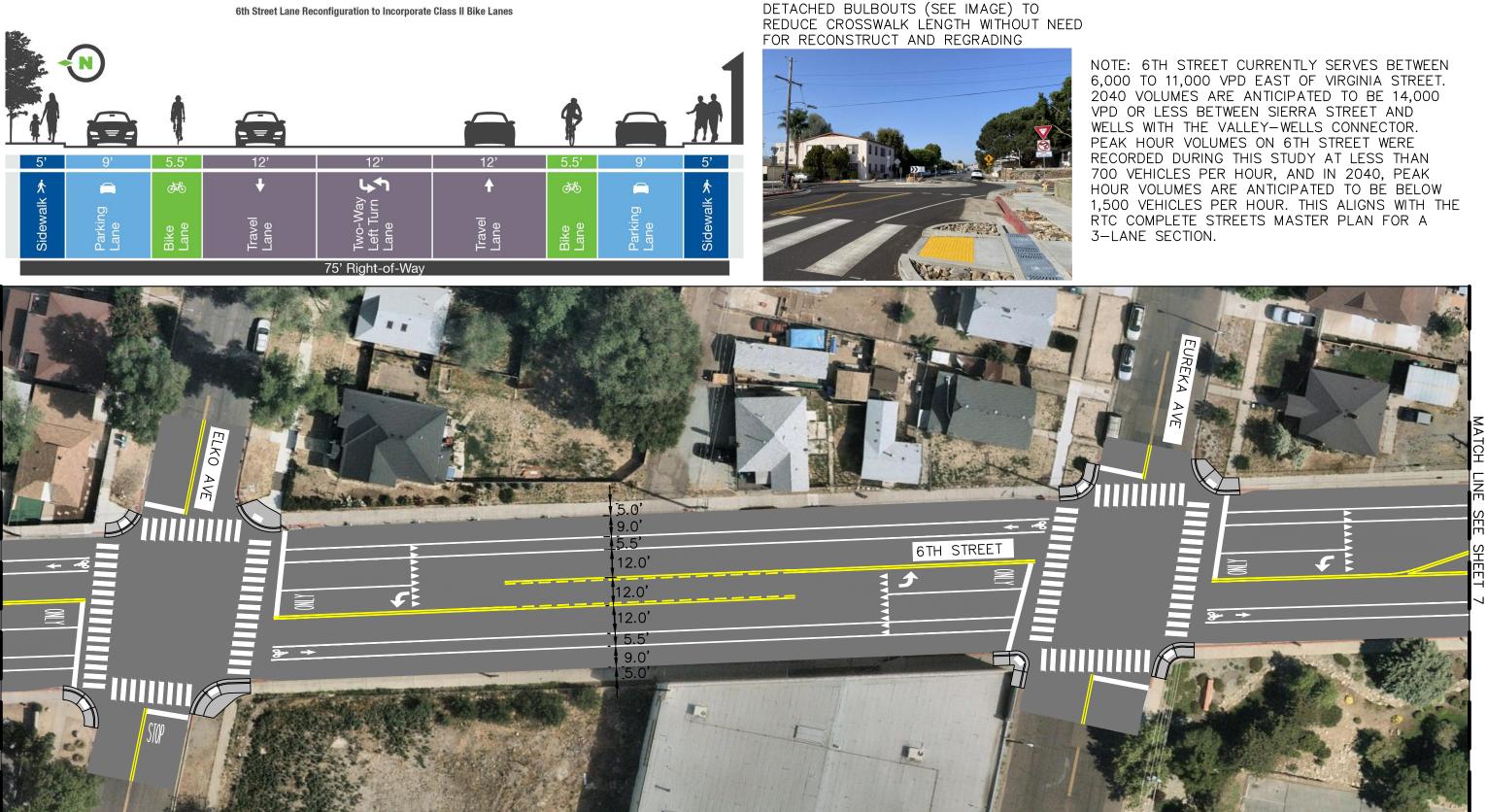
PEDESTRIAN RAMP RECONSTRUCTION

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SLURRY AND RESTRIPE 6TH STREET FIGURE: 5 SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION: DECEMBER 1, 2020 092528011 1A



NOTE: POTENTIAL OPTION TO ADD



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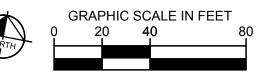
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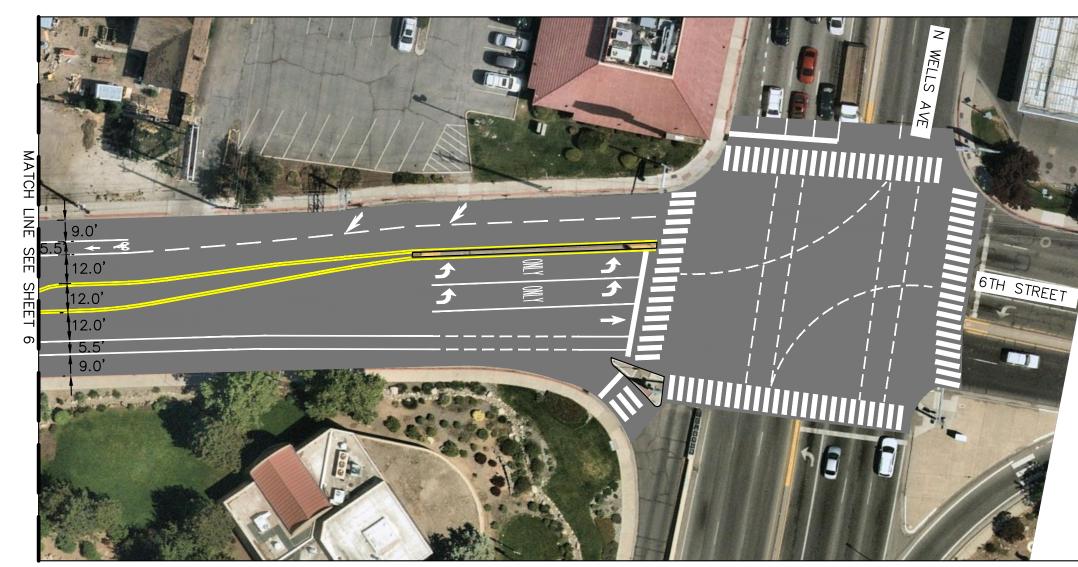
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SLURRY AND RESTRIPE 6TH STREET FIGURE: 6 SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION:

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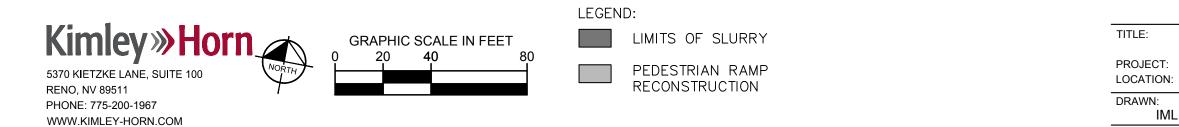
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### NOTES:

- 1. STRIPING THIS SHEET GENERALLY CONSISTS OF MERGING BACK INTO EXISTING STRIPING LAYOUT.
- 2. OPTION TO CONVERT THE #2 WESTBOUND 6TH STREET LANE TO A DEDICATED RIGHT (NORTHBOUND) LANE
  - AND START WESTBOUND BIKE LANE AT WEST SIDE OF WELLS INTERSECTION.



NOTE: POTENTIAL OPTION TO ADD DETACHED BULBOUTS (SEE IMAGE) TO REDUCE CROSSWALK LENGTH WITHOUT NEED FOR RECONSTRUCT AND REGRADING



NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

PROJECT:	DATE:	VERSION:
092528011	DECEMBER 1, 2020	1/



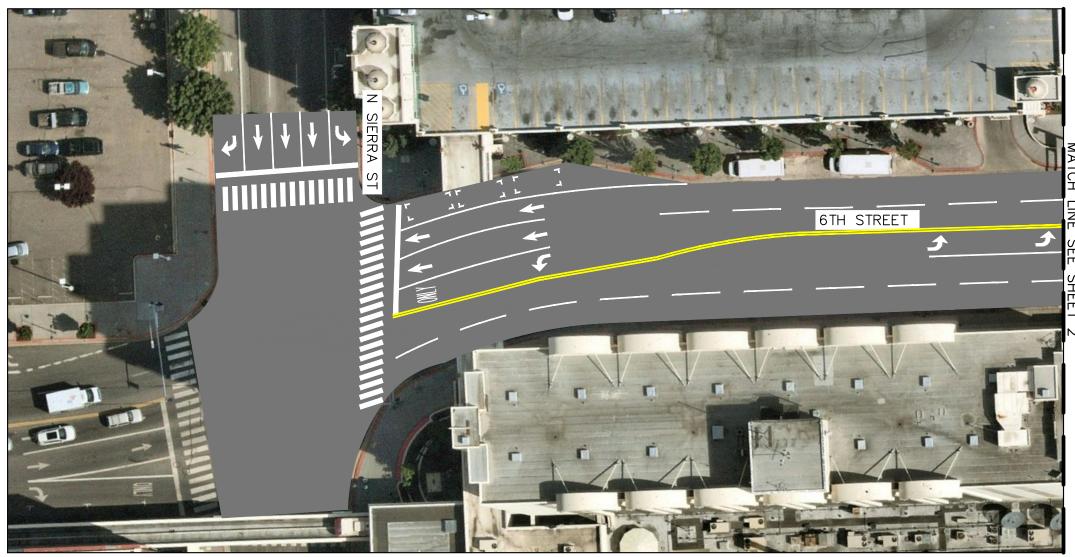
#### ENGINEER'S OPINION OF PROBABLE COST

#### PROJECT NAME: 6TH STREET SCHEMATIC-ALTERNATIVE 1 (SLURRY AND STRIPE) CLIENT: RTC OF WASHOE COUNTY KH JOB NUMBER: 092528011

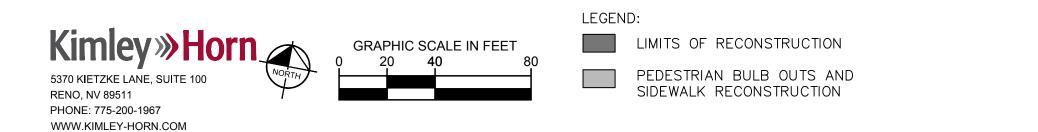
DATE: 01/07/2021 CREATED BY: IML CHECKED BY: CNH

BID ITEM			ESTIMATED	ESTIMATED	
NO.	BID ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
	DESIGN		-		
D1	PS&E	LS	1	\$124,000	\$124,000
	DESIGN SUBTOTAL				\$124,000
	CONSTRUCTION				
C1	PROJECT MOBILIZATION, DEMOBILIZATION, AND OFF SITE STAGING AREA @ 6%	LS	1	\$18,000	\$18,000
C2	INSTALL THERMOPLASTIC PAVEMENT MARKING ("ONLY")	EA	16	\$350	\$5,600
C3	PLACE 24" STOP BAR THERMOPLASTIC	LF	942	\$18	\$16,956
C4	PLACE RR CROSSING THERMOPLASTIC	EA	2	\$620	\$1,240
C5	INSTALL THERMOPLASTIC PAVEMENT MARKING (YIELD TRIANGLES)	EA	72	\$60	\$4,320
C6	PLACE CROSSWALK THERMOPLASTIC	LF	4,500	\$15	\$67,500
C7	INSTALL THERMOPLASTIC PAVEMENT MARKING (ARROWS LEGEND)	EA	50	\$250	\$12,500
C8	INSTALL THERMOPLASTIC PAVEMENT MARKING (BIKE LEGEND)	EA	19	\$300	\$5,700
C9	PLACE SLURRY SEAL	SF	284,238	\$0.60	\$170,543
C10	MISCELLANEOUS LONGITUDINAL STRIPING (PAINT)	LS	1	\$10,000	\$10,000
C11	CONSTRUCT PCC PEDESTRIAN RAMPS	SF	3,453	\$45	\$155,385
C12	SIGNAL MODIFICIATIONS	LS	1	\$50,000	\$50,000
C13	TRAFFIC CONTROL	LS	1	\$100,000	\$100,000
	CONSTRUCTION SUBTOTAL				\$617,744
	Engineering During Construction				
EDC1	CONSTRUCTION SERVICES	LS	1	\$124,000	\$124,000
	EDC SUBTOTAL				\$124,000
	CONTINGENCY	4	1.0	000.000	*** ***
	CONTINGENCY	1	LS	\$86,600	\$86,600 \$952,344
	PROJECT PLANNING ESTIMATE				\$952,3

Appendix B Alternative 2: Reconstruct and Restripe 6th Street Page 5



NOTE: NO STRIPING CHANGES PROPOSED ON THIS SHEET.



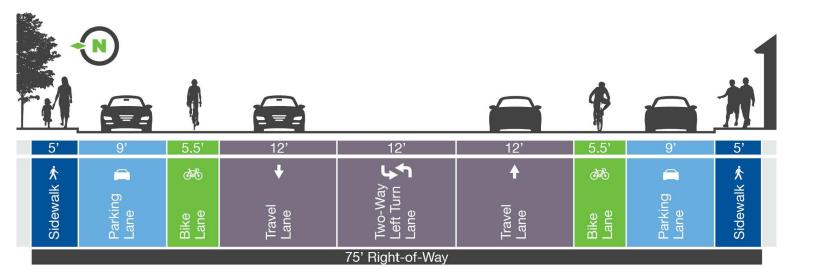
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PROJECT: LOCATION: DRAWN:

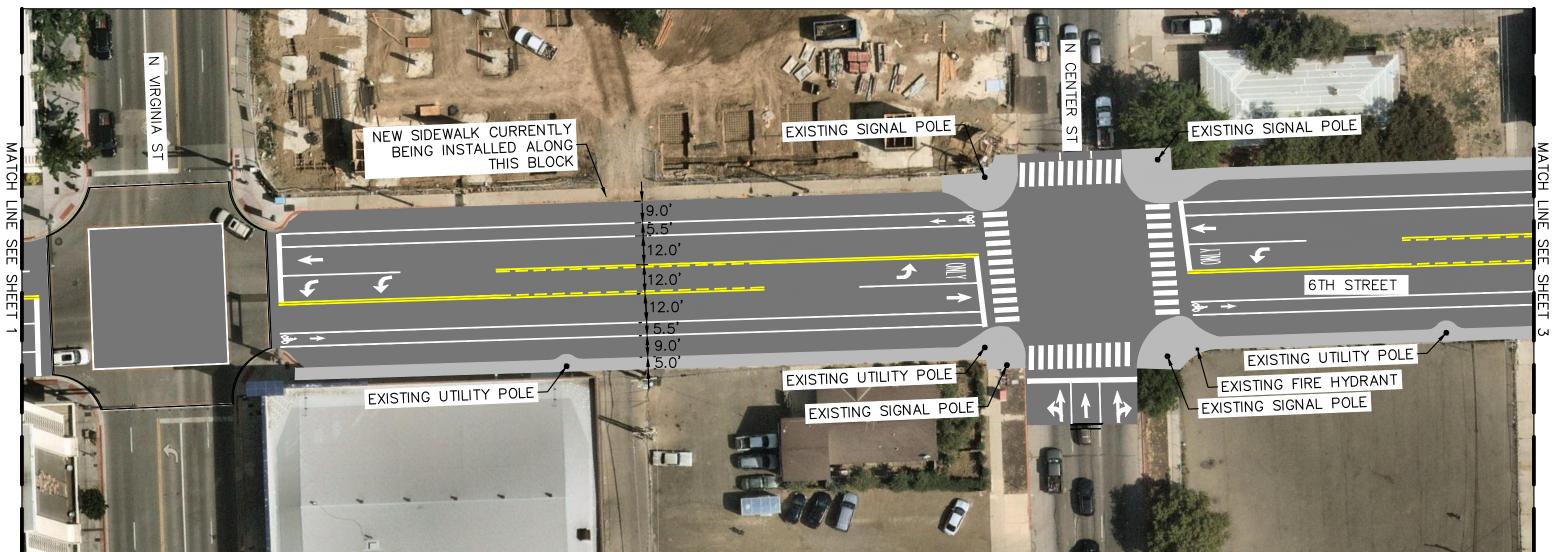
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RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

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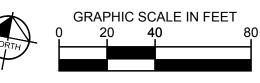


NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.





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LEGEND:

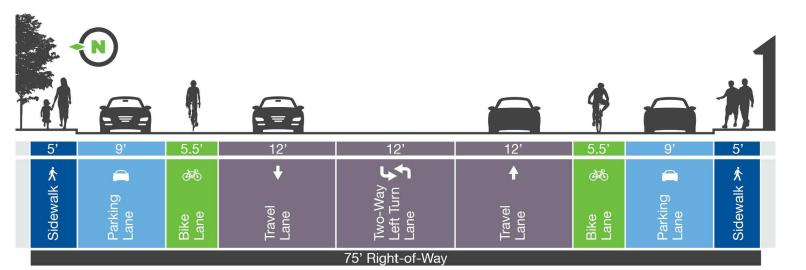
LIMITS OF RECONSTRUCTION

PEDESTRIAN BULB OUTS AND SIDEWALK RECONSTRUCTION TITLE:

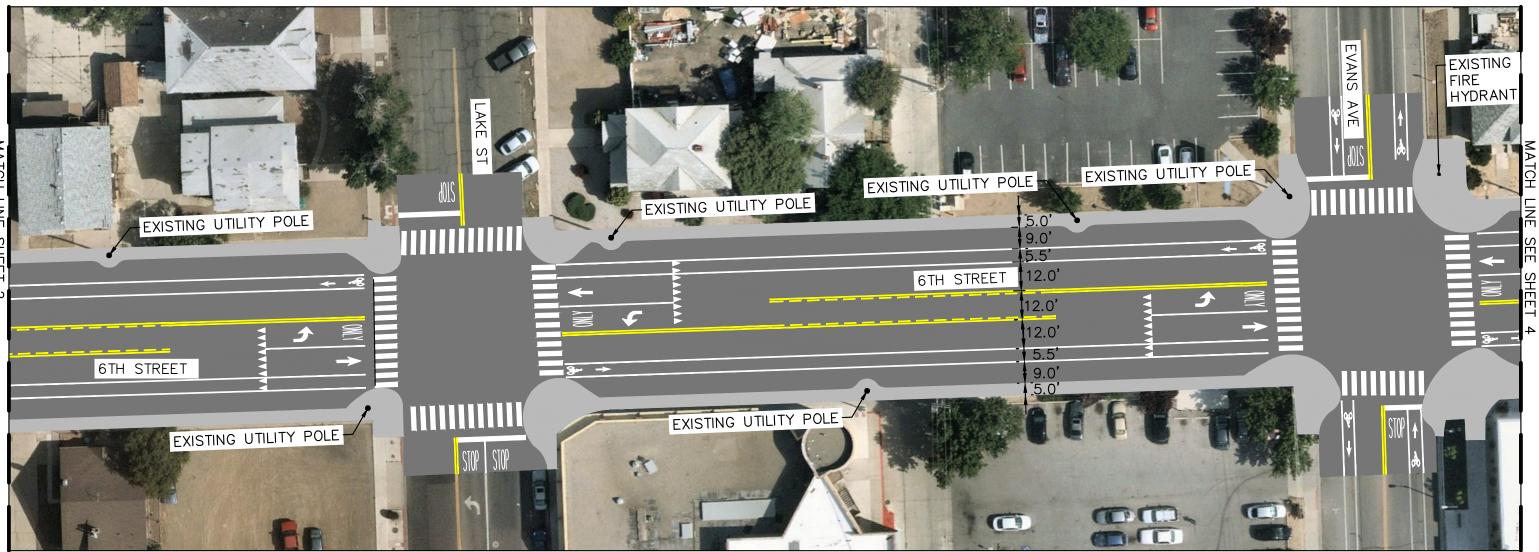
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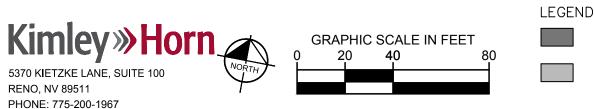
DRAWN: IML RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

PROJECT:	DATE:	VERSION:
092528011	DECEMBER 1, 2020	2A



NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.





LEGEND:

LIMITS OF RECONSTRUCTION

PEDESTRIAN BULB OUTS AND SIDEWALK RECONSTRUCTION

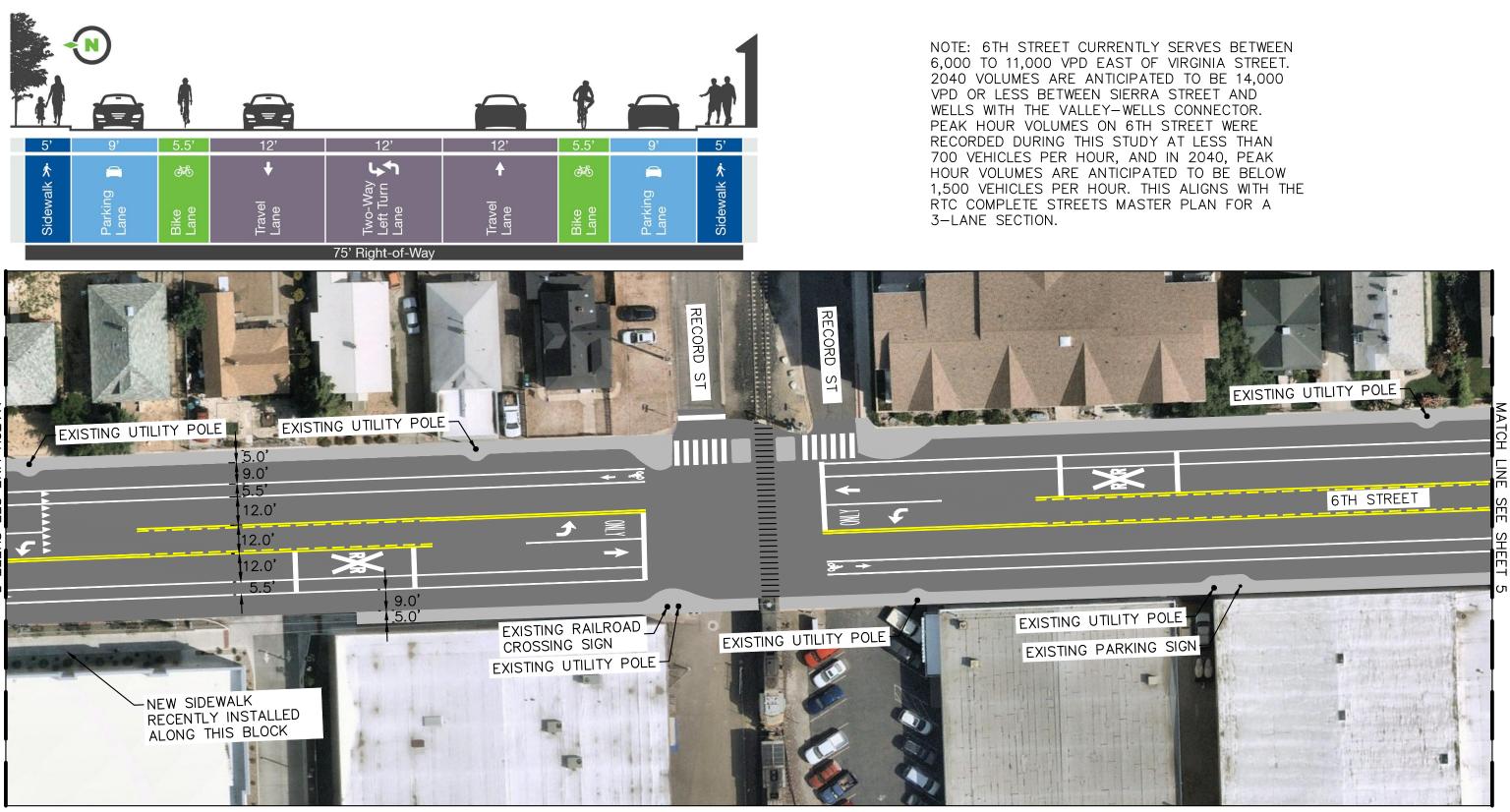
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RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY J RENO, NV





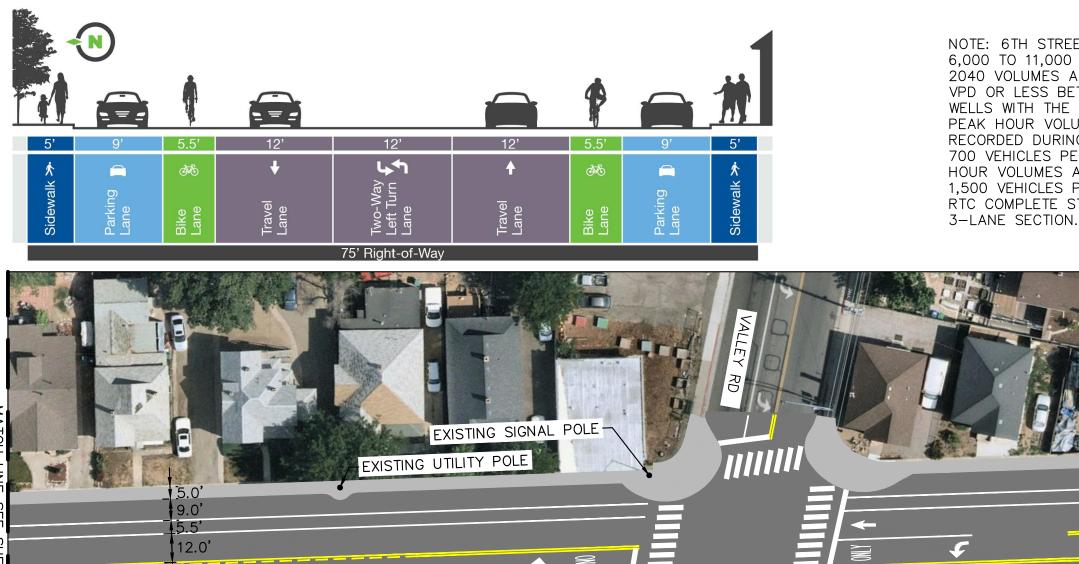
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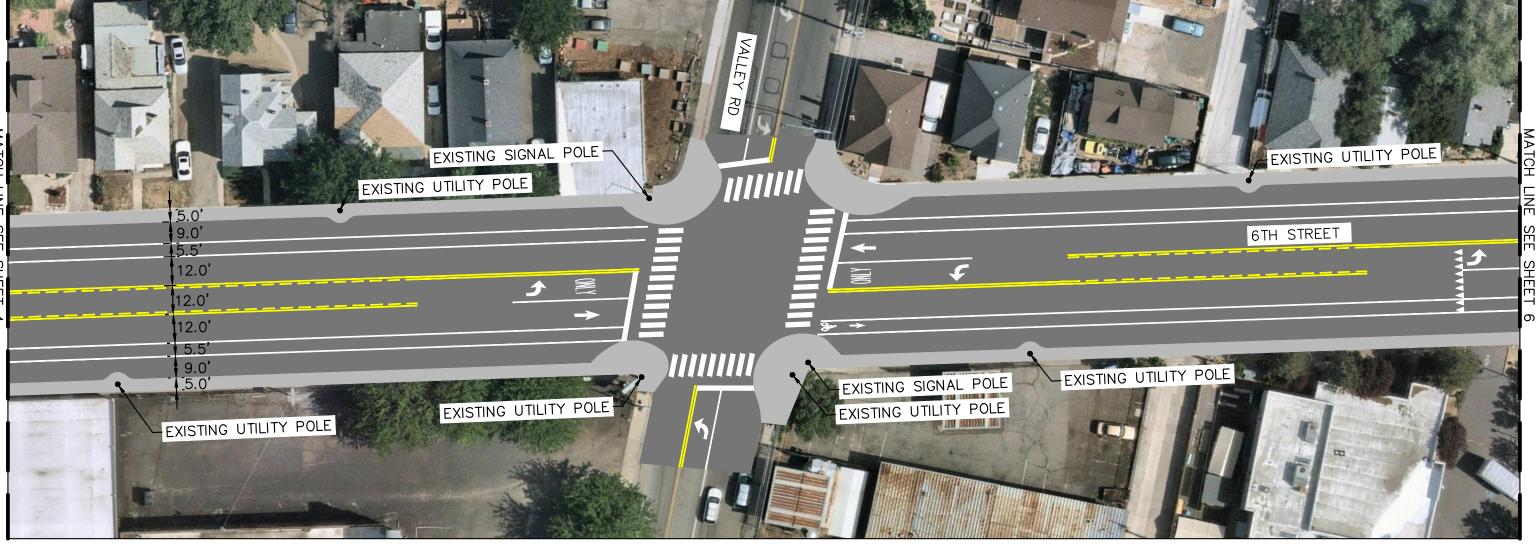
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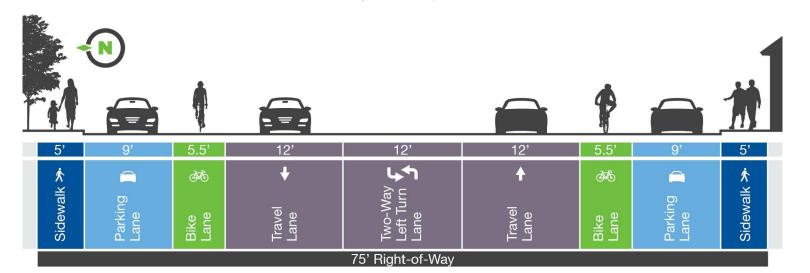




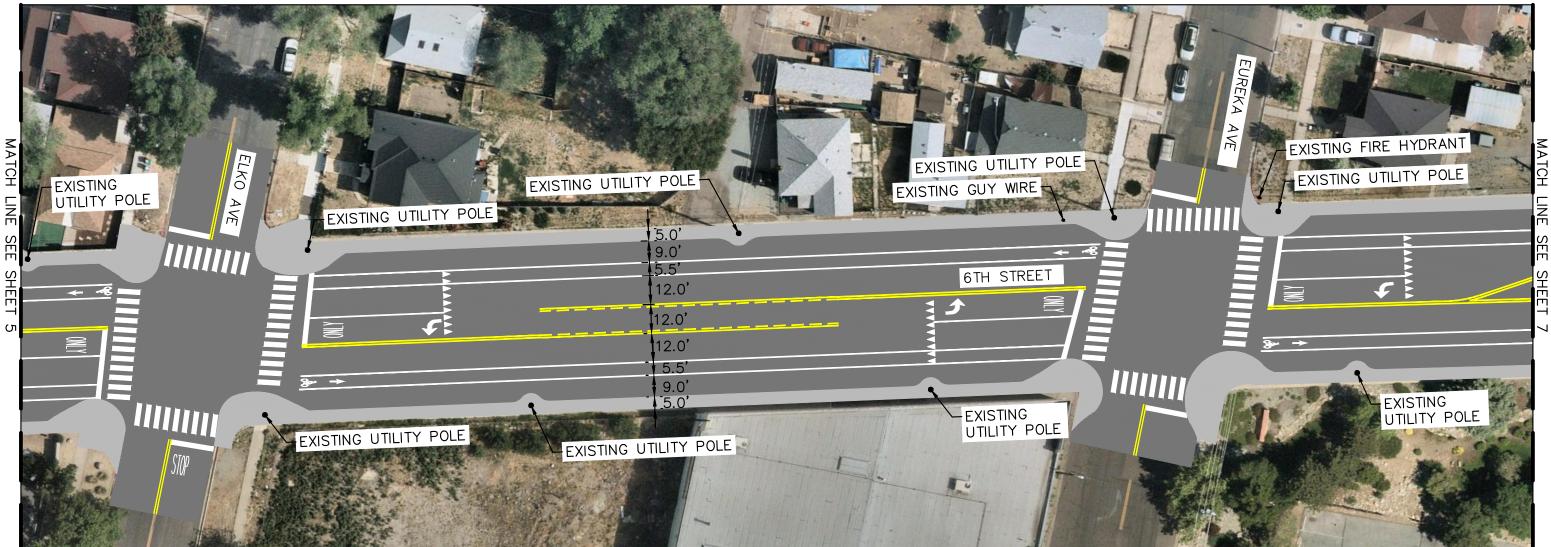


NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A

> RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC 5 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION: DECEMBER 1, 2020 092528011 2A



NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.





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LEGEND:

LIMITS OF RECONSTRUCTION

SIDEWALK RECONSTRUCTION

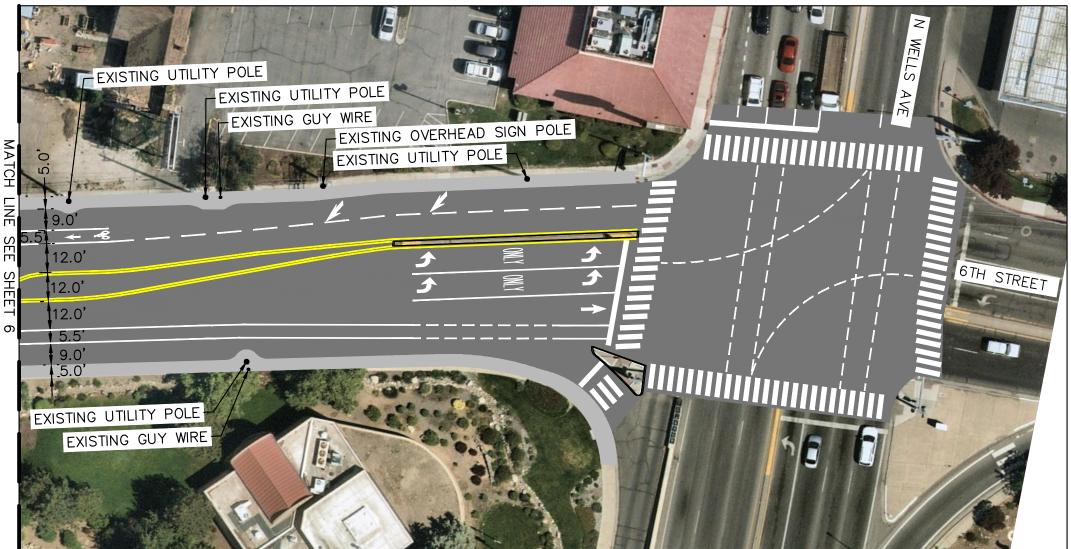
TITLE:

PROJECT: LOCATION:

DRAWN: IML RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

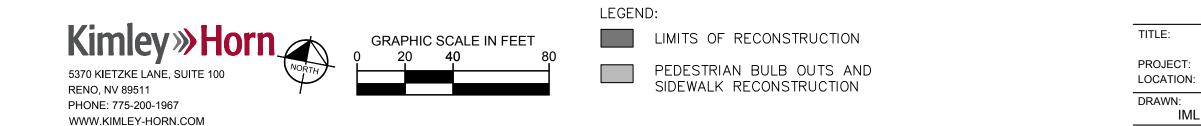
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NOTES:

- 1. STRIPING THIS SHEET GENERALLY CONSISTS OF MERGING BACK INTO EXISTING STRIPING LAYOUT.
- 2. OPTION TO CONVERT THE #2 WESTBOUND 6TH STREET LANE TO A DEDICATED RIGHT (NORTHBOUND) LANE AND START WESTBOUND BIKE LANE AT WEST SIDE OF WELLS INTERSECTION.



RECONSTRUCT AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

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#### ENGINEER'S OPINION OF PROBABLE COST

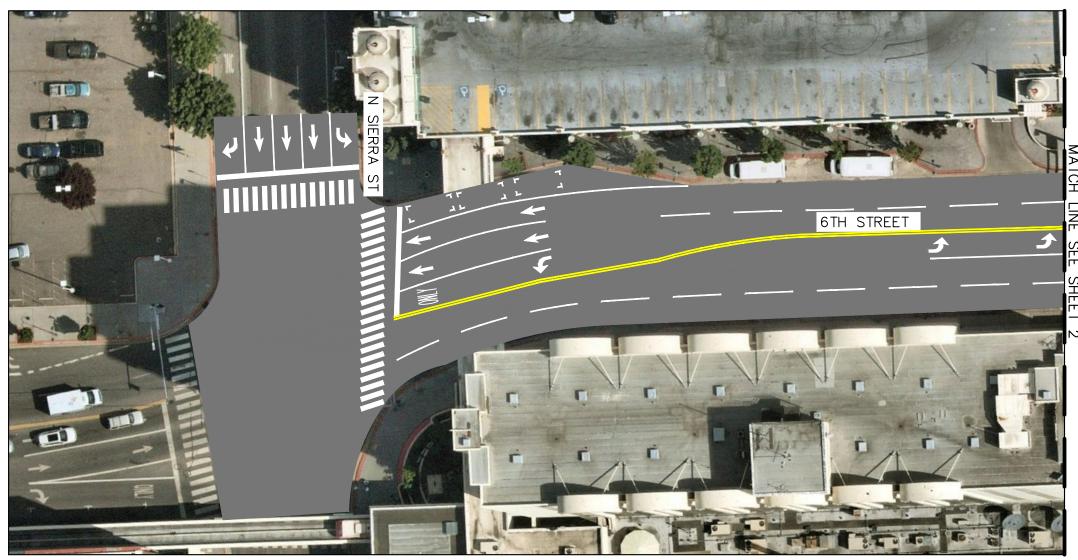
#### PROJECT NAME: 6TH STREET SCHEMATIC-ALTERNATIVE 2 (RECONSTRUCT AND STRIPE) CLIENT: RTC OF WASHOE COUNTY KH JOB NUMBER: 092528011

DATE: 01/07/2021 CREATED BY: IML CHECKED BY: CNH

BID ITEM NO.	BID ITEM	UNIT	ESTIMATED QUANTITY	ESTIMATED	TOTAL
	DESIGN				
D1	PS&E	LS	1	\$529,000	\$529,000
	DESIGN SUBTOTAL				\$529,00
	CONSTRUCTION				
C1	PROJECT MOBILIZATION, DEMOBILIZATION, AND OFF SITE STAGING AREA @ 6%	LS	1	\$213,000	\$213,00
C2	INSTALL THERMOPLASTIC PAVEMENT MARKING ("ONLY")	EA	16	\$350	\$5,60
C3	PLACE 24" STOP BAR THERMOPLASTIC	LF	960	\$18	\$17,28
C4	PLACE RR CROSSING THERMOPLASTIC	EA	2	\$620	\$1,240
C5	INSTALL THERMOPLASTIC PAVEMENT MARKING (YIELD TRIANGLES)	EA	72	\$60	\$4,320
C6	PLACE CROSSWALK THERMOPLASTIC	LF	4,500	\$15	\$67,500
C7	INSTALL THERMOPLASTIC PAVEMENT MARKING (ARROWS LEGEND)	EA	50	\$250	\$12,50
C8	INSTALL THERMOPLASTIC PAVEMENT MARKING (BIKE LEGEND)	EA	19	\$300	\$5,70
C9	RECONSTRUCT/REGRADE ROADWAY	SF	284,238	\$12.00	\$3,410,850
C10	MISCELLANEOUS LONGITUDINAL STRIPING (PAINT)	LS	1	\$12,000	\$12,00
C11	CONSTRUCT PCC PEDESTRIAN RAMPS WITH BULB OUTS	SF	12,084	\$40	\$483,36
C12	CONSTRUCT PCC ISLAND AND SIDEWALK	SF	25,820	\$20.00	\$516,400.00
C13	CONSTRUCT PCC CURB AND GUTTER	LF	4,809	\$75.00	\$360,675.00
C14	CONSTRUCT BULB OUTS AROUND UTILITIES	SF	688	\$40.00	\$27,520.00
C15	SIGNAL MODIFICIATIONS	LS	1	\$50,000	\$50,000
C16	TRAFFIC CONTROL	LS	1	\$100,000	\$100,000
	CONSTRUCTION SUBTOTAL				\$5,287,95 <sup>,</sup>
	Engineering During Construction				
EDC1	CONSTRUCTION SERVICES	LS	1	\$265,000	\$265,000
	EDC SUBTOTAL				\$265,00
	CONTINGENCY	1.0	4	¢000.000	¢
	CONTINGENCY PROJECT PLANNING ESTIMATE	LS	1	\$608,200	\$608,200 \$6,690,151

Appendix C Alternative 3: Slurry and Restripe 6th Street with Bike Lane Buffer

Page 6



NOTE: NO STRIPING CHANGES PROPOSED ON THIS SHEET.



 SLURRY AND RESTRIPE 6TH STREET
 FIGURE:

 SAFETY IMPROVEMENTS SCHEMATIC-ALT 3
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 UNIVERSITY AREA TRANSPORTATION STUDY
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 PROJECT:
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TITLE:

PROJECT:

LOCATION:

IML

DRAWN:

REDUCE CROSSWALK LÈNGTH WITHOUT NEED FOR RECONSTRUCT AND REGRADING NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 2.5' 5' 5.5' 2.5' 13' 5.5' 13'  $13^{2}$ -5' 700 VEHICLES PER HOUR, AND IN 2040, PEAK Buffer Buffer հղ ♠ HOUR VOLUMES ARE ANTICIPATED TO BE BELOW \$~ Sidewalk ≯ Å 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE in W Sidewalk Lane RTC COMPLETE STREETS MASTER PLAN FOR A Travel Lane Trave Parki Lane Bike Lane 3-LANE SECTION. Bike Bike Ľ m 75' Right-of-Way 10.0' 5.5 13.0' SHEET 13.0' 6TH STREET -----13.0' IT



PHONE: 775-200-1967 WWW.KIMLEY-HORN.COM

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LEGEND:

LIMITS OF SLURRY

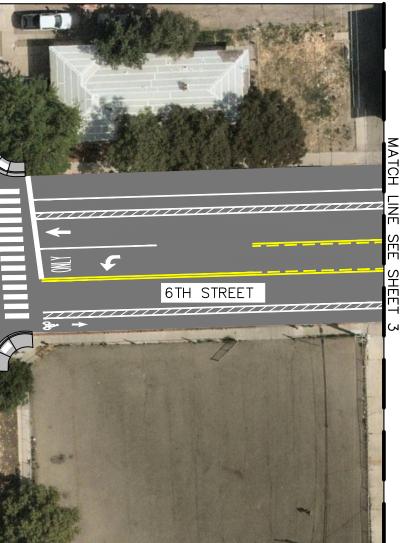
PEDESTRIAN RAMP RECONSTRUCTION

TITLE:

PROJECT: LOCATION:

### NOTE: POTENTIAL OPTION TO ADD DETACHED BULBOUTS (SEE IMAGE) TO

6th Street Lane Reconfiguration to Incorporate Class II Bike Lanes



SLURRY AND RESTRIPE 6TH STREET FIGURE: 2 SAFETY IMPROVEMENTS SCHEMATIC-ALT 3 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION: 192166000 DECEMBER 1, 2020 ЗA

REDUCE CROSSWALK LÈNGTH WITHOUT NEED FOR RECONSTRUCT AND REGRADING NOTE: 6TH STREET CURRENTLY SERVES BETWEEN N 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 5' 2.5' 5.5' 2.5' 13' 5.5' 13'  $13^{2}$ 700 VEHICLES PER HOUR, AND IN 2040, PEAK Buffer Buffer հղ ♠ \$~ HOUR VOLUMES ARE ANTICIPATED TO BE BELOW Sidewalk ≯ Å Two-Way Left Turn 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE walk Bike Lane **Bike Lane** RTC COMPLETE STREETS MASTER PLAN FOR A Travel Lane Trave Lane THE REAL PROPERTY. Parki Lane Bike Lane Side 3-LANE SECTION. Ľ m 75' Right-of-Way LAKE MATCH LINE 10.0' 5.5 11111 13.0' 6TH STREET 13.0' 13.0' 6TH STREET mm. 



LEGEND:

LIMITS OF SLURRY PEDESTRIAN RAMP

RECONSTRUCTION

TITLE:

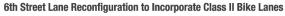
PROJECT: LOCATION:

DRAWN: IML

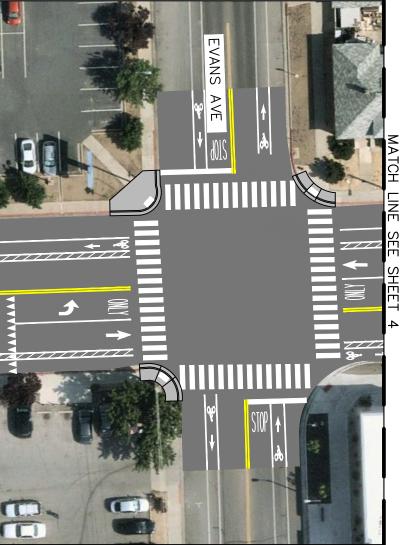
RENO, NV 89511 PHONE: 775-200-1967

SHEET

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NOTE: POTENTIAL OPTION TO ADD DETACHED BULBOUTS (SEE IMAGE) TO



SLURRY AND RESTRIPE 6TH STREET FIGURE: 3 SAFETY IMPROVEMENTS SCHEMATIC-ALT 3 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

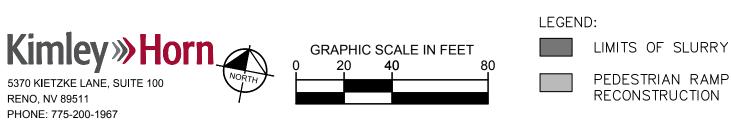
PROJECT:	
192166000	

DATE: DECEMBER 1, 2020





NOTE: POTENTIAL OPTION TO ADD



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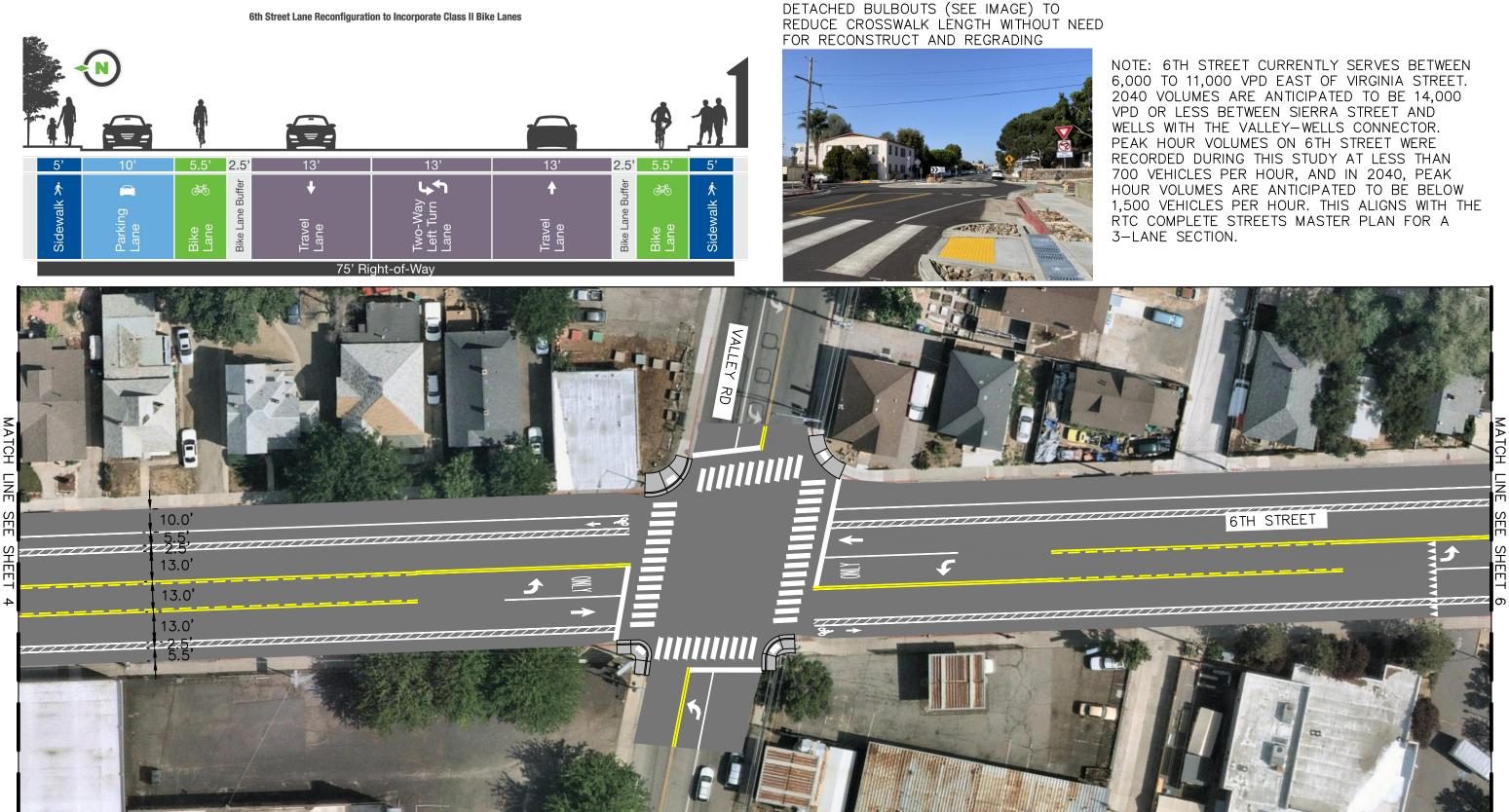
WWW.KIMLEY-HORN.COM

TITLE:

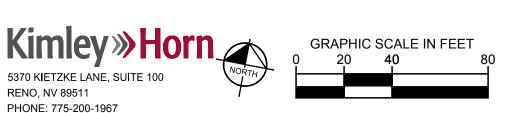
PROJECT: LOCATION:

DRAWN: IML

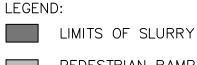
	RIPE 6TH STREET IENTS SCHEMATIC-AL TRANSPORTATION ST	
RENO, NV	TRANSPORTATION ST	
PROJECT:	DATE:	VERSION:
192166000	DECEMBER 1, 2020	3A



NOTE: POTENTIAL OPTION TO ADD



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PEDESTRIAN RAMP RECONSTRUCTION

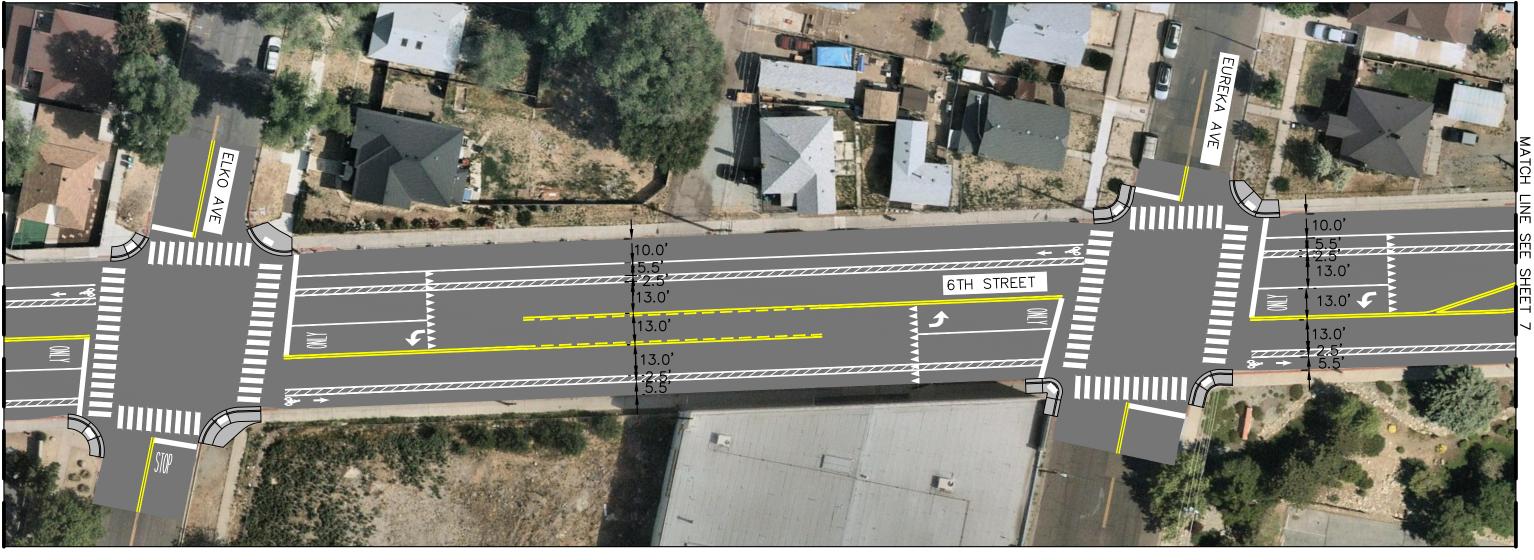
TITLE:

PROJECT: LOCATION:

DRAWN: IML

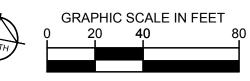
SLURRY AND RESTRIPE 6TH STREET FIGURE: 5 SAFETY IMPROVEMENTS SCHEMATIC-ALT 3 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: DATE: VERSION: 192166000 DECEMBER 1, 2020 ЗA

6th Street Lane Reconfiguration to Incorporate Class II Bike Lanes REDUCE CROSSWALK LÈNGTH WITHOUT NEED FOR RECONSTRUCT AND REGRADING 2.5' 5' 5.5' 2.5' 5.5' 13' $13^{2}$ 13' Buffer Buffer հղ ♠ × **\$** Sidewalk walk L a Bike Lane **Bike Lane** Travel Lane THE STATE Parki Lane Bike Lane Side Trave Lane Ľ m 75' Right-of-Way ELKO





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LIMITS OF SLURRY PEDESTRIAN RAMP

RECONSTRUCTION

TITLE:

PROJECT: LOCATION:

> DRAWN: IML

NOTE: POTENTIAL OPTION TO ADD DETACHED BULBOUTS (SEE IMAGE) TO

> NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: 6 SAFETY IMPROVEMENTS SCHEMATIC-ALT 3 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

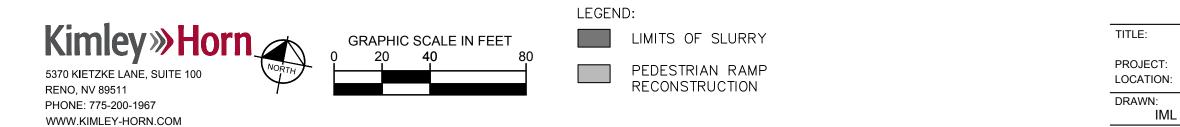
PROJECT:
192166000

DATE: DECEMBER 1, 2020 VERSION: ЗA



### NOTES:

- 1. STRIPING THIS SHEET GENERALLY CONSISTS OF MERGING BACK INTO EXISTING STRIPING LAYOUT.
- 2. OPTION TO CONVERT THE #2 WESTBOUND 6TH STREET LANE TO A DEDICATED RIGHT (NORTHBOUND) LANE
  - AND START WESTBOUND BIKE LANE AT WEST SIDE OF WELLS INTERSECTION.



NOTE: POTENTIAL OPTION TO ADD DETACHED BULBOUTS (SEE IMAGE) TO REDUCE CROSSWALK LENGTH WITHOUT NEED FOR RECONSTRUCT AND REGRADING



NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC-ALT 3 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

PROJECT:	DATE:	VERSION:
192166000	DECEMBER 1, 2020	3A



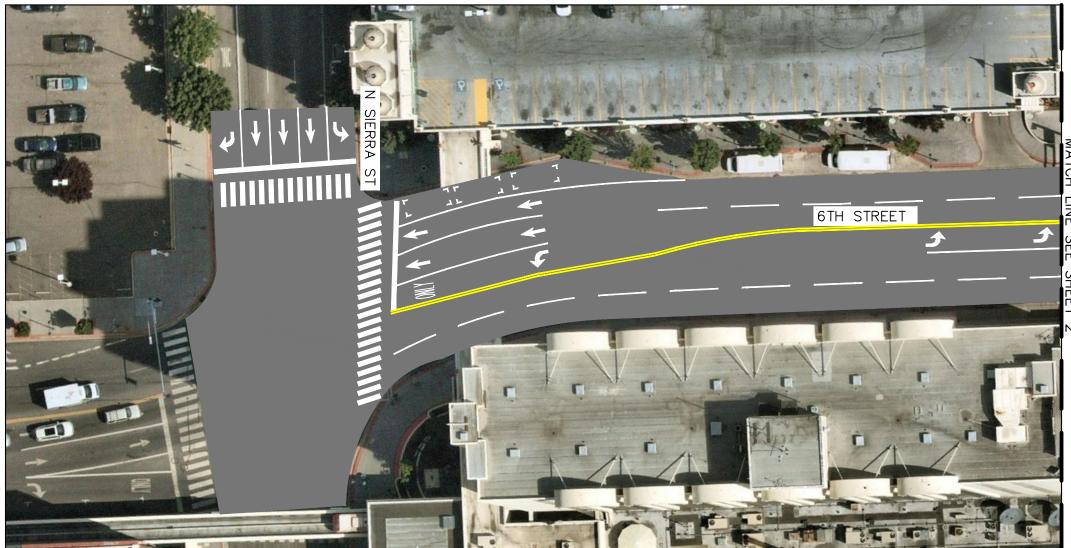
#### ENGINEER'S OPINION OF PROBABLE COST

#### PROJECT NAME: 6TH STREET SCHEMATIC-ALTERNATIVE 3 (SLURRY AND STRIPE WITH BIKE LANE BUFFER) CLIENT: RTC OF WASHOE COUNTY KH JOB NUMBER: 092528011

DATE: 01/07/2021 CREATED BY: IML CHECKED BY: CNH

BID ITEM			ESTIMATED	ESTIMATED	
NO.	BID ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
	DESIGN				
D1	PS&E	LS	1	\$124,000	\$124,00
	DESIGN SUBTOTAL				\$124,00
	CONSTRUCTION				
C1	PROJECT MOBILIZATION, DEMOBILIZATION, AND OFF SITE STAGING AREA @ 6%	LS	1	\$18,000	\$18,00
C2	INSTALL THERMOPLASTIC PAVEMENT MARKING ("ONLY")	EA	16	\$350	\$5,60
C3	PLACE 24" STOP BAR THERMOPLASTIC	LF	942	\$18	\$16,95
C4	PLACE RR CROSSING THERMOPLASTIC	EA	2	\$620	\$1,24
C5	INSTALL THERMOPLASTIC PAVEMENT MARKING (YIELD TRIANGLES)	EA	72	\$60	\$4,32
C6	PLACE CROSSWALK THERMOPLASTIC	LF	4,500	\$15	\$67,50
C7	INSTALL THERMOPLASTIC PAVEMENT MARKING (ARROWS LEGEND)	EA	50	\$250	\$12,50
C8	INSTALL THERMOPLASTIC PAVEMENT MARKING (BIKE LEGEND)	EA	19	\$300	\$5,70
C9	PLACE SLURRY SEAL	SF	284,238	\$0.60	\$170,54
C10	MISCELLANEOUS LONGITUDINAL STRIPING (PAINT)	LS	1	\$12,000	\$12,00
C11	CONSTRUCT PCC PEDESTRIAN RAMPS	SF	3,453	\$45	\$155,38
C12	SIGNAL MODIFICIATIONS	LS	1	\$50,000	\$50,00
C13	TRAFFIC CONTROL	LS	1	\$100,000	\$100,00
	CONSTRUCTION SUBTOTAL				\$619,74
	ENGINEERING DURING CONSTRUCTION				
EDC1	CONSTRUCTION SERVICES	LS	1	\$124,000	\$124,00
	EDC SUBTOTAL				\$124,00
	CONTINGENCY	1	10	<b>*</b> 00.000	¢00.00
	CONTINGENCY PROJECT PLANNING ESTIMATE	1	LS	\$86,800	\$86,80 \$954,54

Appendix D Alternative 4: Slurry and Restripe 6th Street with Parking Lane Between Bike Lane and Travel Lane



NOTE: NO STRIPING CHANGES PROPOSED ON THIS SHEET.



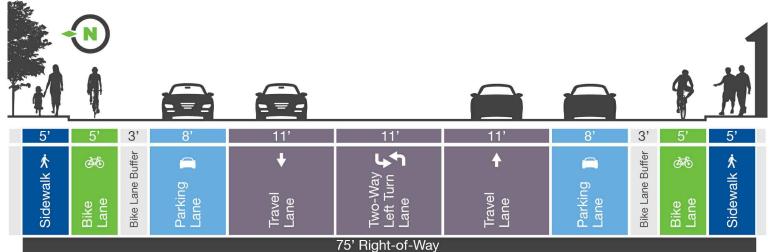
TITLE:

PROJECT: LOCATION: DRAWN:

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NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: VERSION: DATE: MARCH 22, 2021 092528011 4A







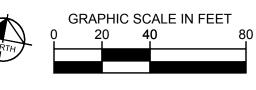
5370 KIETZKE LANE, SUITE 100 RENO, NV 89511 PHONE: 775-200-1967 WWW.KIMLEY-HORN.COM

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LEGEND:

LIMITS OF SLURRY PEDESTRIAN RAMP RECONSTRUCTION  $\square$ 

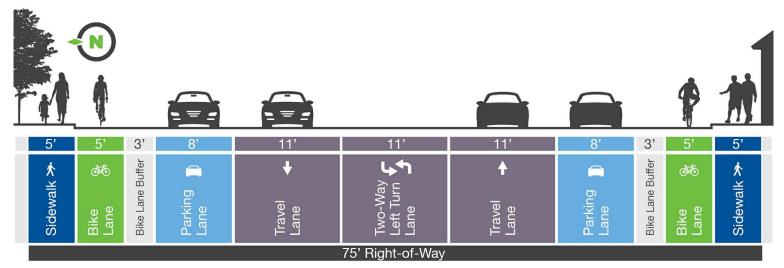
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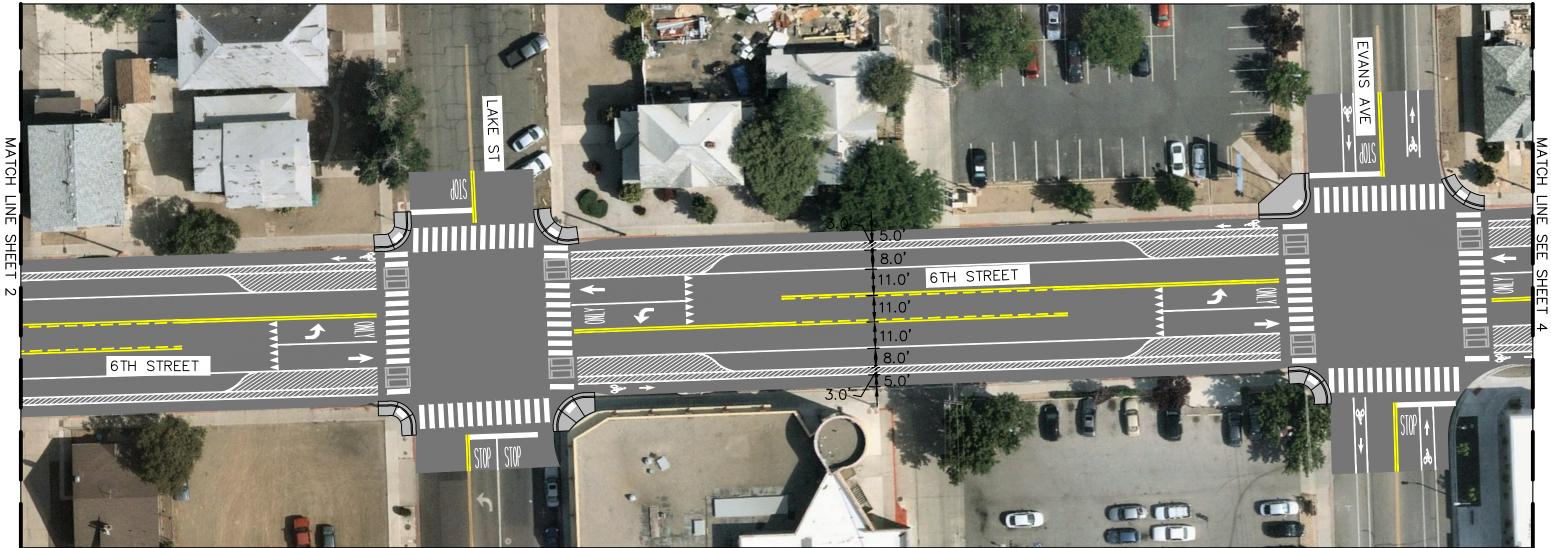
TITLE:

PROJECT: LOCATION:

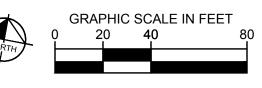
NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: 2 SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: VERSION: DATE: MARCH 22, 2021 092528011 4A





5370 KIETZKE LANE, SUITE 100 RENO, NV 89511 PHONE: 775-200-1967 WWW.KIMLEY-HORN.COM



LEGEND:

LIMITS OF SLURRY PEDESTRIAN RAMP RECONSTRUCTION

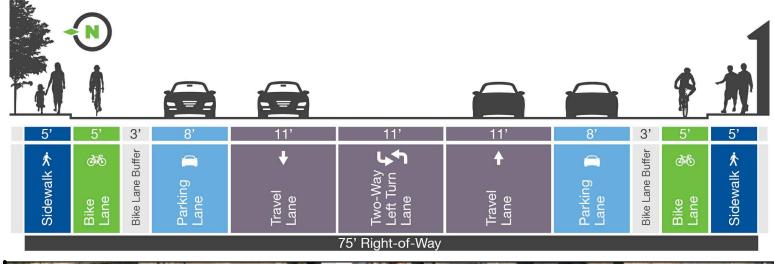
DETACHED PEDESTRIAN RAMP TITLE:

PROJECT: LOCATION:

NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

092528011 MARCH 22, 2021 4A	PROJECT:		VERSION:
	092528011	MARCH 22, 2021	4A



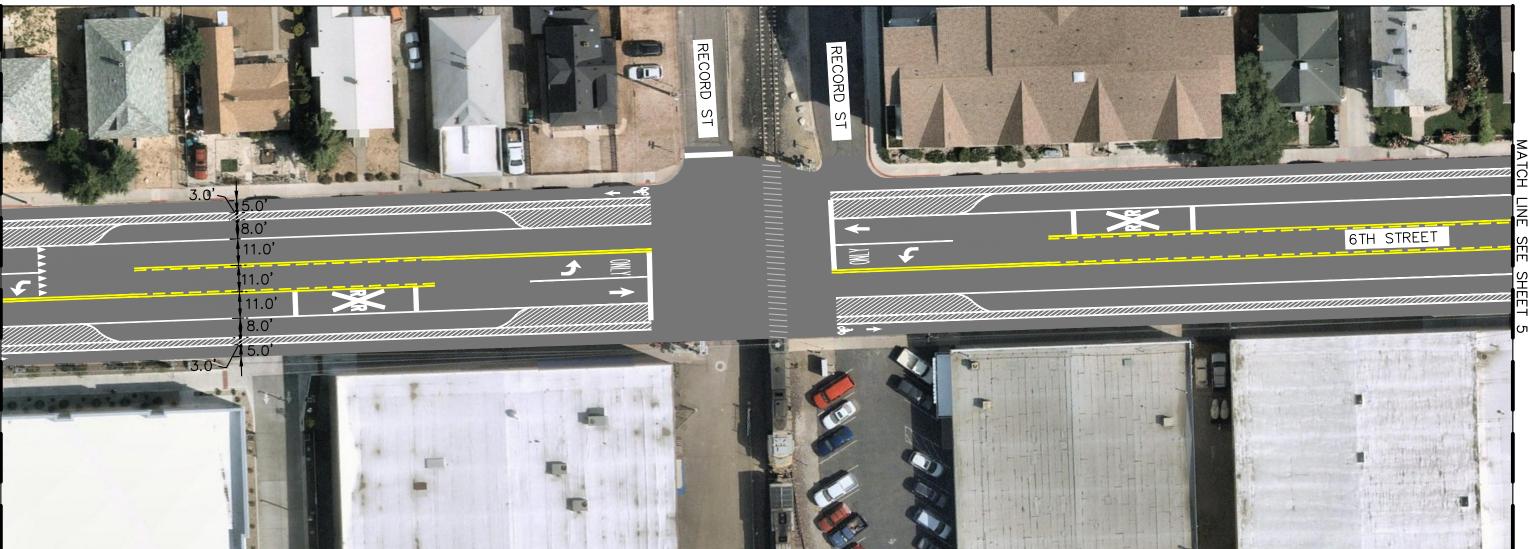
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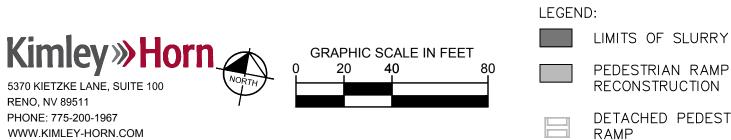
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PEDESTRIAN RAMP

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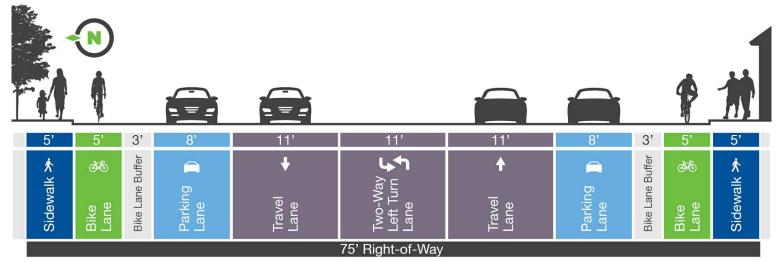
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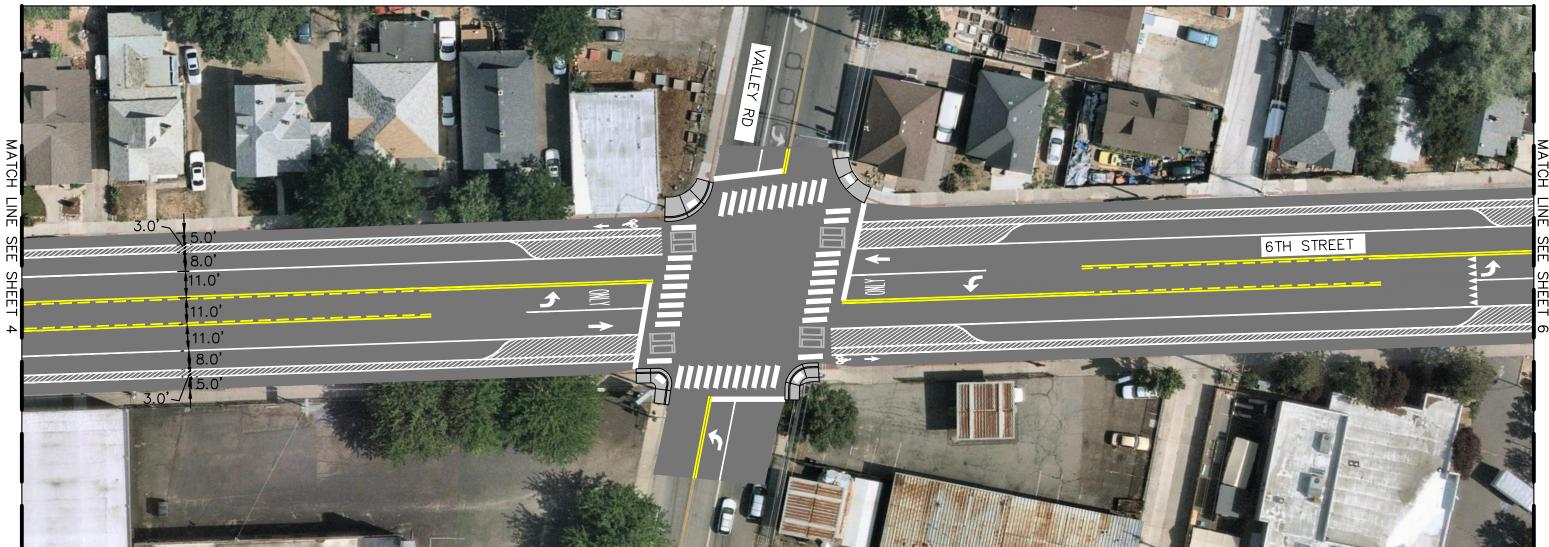
PROJECT: LOCATION:

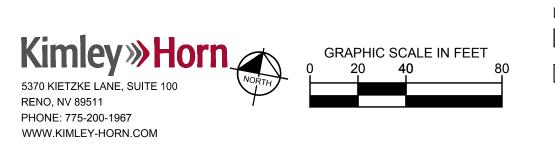
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NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

	RIPE 6TH STREET MENTS SCHEMATIC TRANSPORTATION ST	FIGURE: TUDY 4
PROJECT: 092528011	DATE: MARCH 22, 2021	VERSION: 4A







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LEGEND:

LIMITS OF SLURRY PEDESTRIAN RAMP RECONSTRUCTION DETACHED PEDESTRIAN  $\square$ RAMP

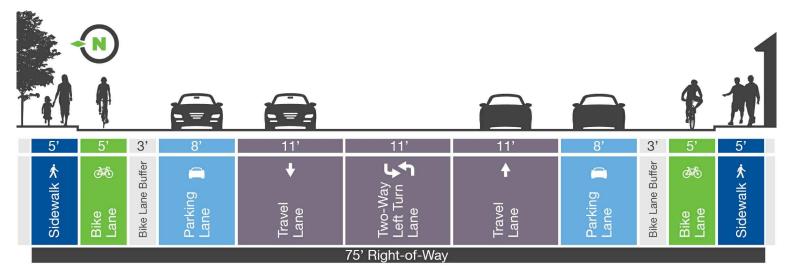
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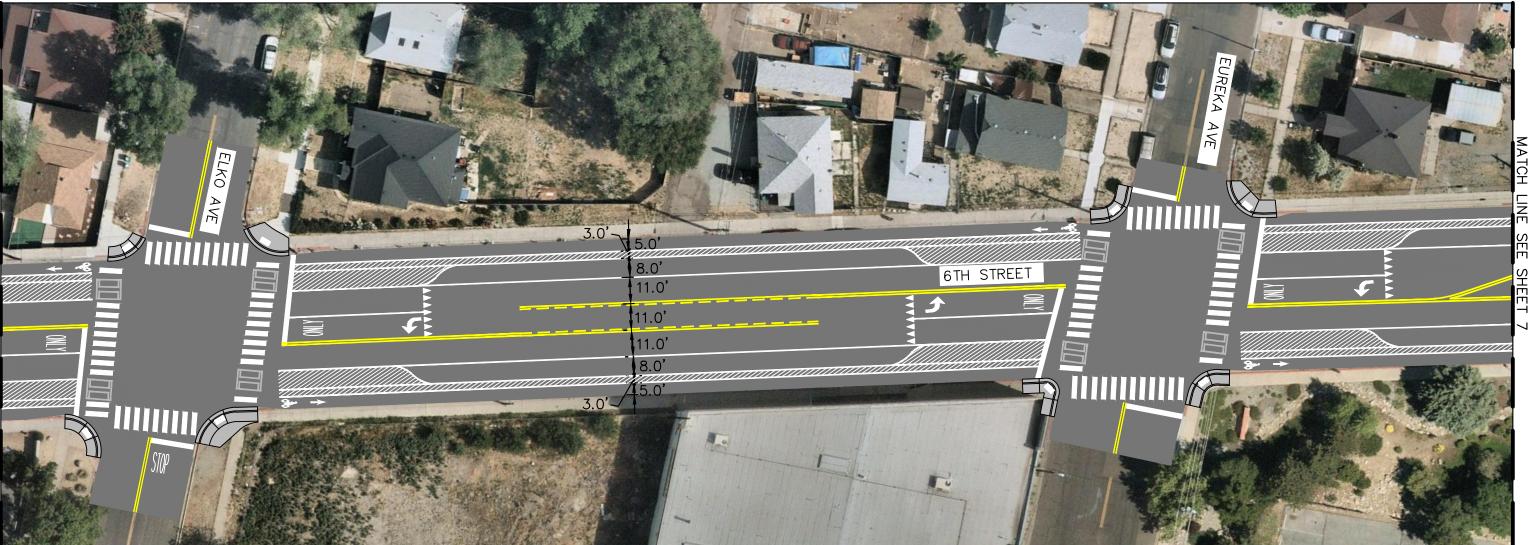
PROJECT: LOCATION: DRAWN:

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NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC 5 UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV PROJECT: VERSION: DATE: MARCH 22, 2021 092528011 4A





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LEGEND:

LIMITS OF SLURRY
PEDESTRIAN RAMP
RECONSTRUCTION
DETACHED PEDESTRIAN
RAMP

TITLE:

PROJECT: LOCATION:

NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

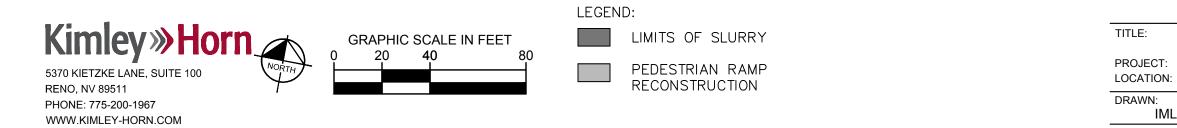
SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

PROJECT:	DATE:	VERSION:
092528011	MARCH 22, 2021	4/



### NOTES:

- 1. STRIPING ON THIS SHEET GENERALLY CONSISTS OF MERGING BACK INTO EXISTING STRIPING LAYOUT.
- 2. OPTION TO CONVERT THE #2 WESTBOUND 6TH STREET LANE TO A DEDICATED RIGHT (NORTHBOUND) LANE AND START WESTBOUND BIKE LANE AT WEST SIDE OF WELLS INTERSECTION.



NOTE: 6TH STREET CURRENTLY SERVES BETWEEN 6,000 TO 11,000 VPD EAST OF VIRGINIA STREET. 2040 VOLUMES ARE ANTICIPATED TO BE 14,000 VPD OR LESS BETWEEN SIERRA STREET AND WELLS WITH THE VALLEY-WELLS CONNECTOR. PEAK HOUR VOLUMES ON 6TH STREET WERE RECORDED DURING THIS STUDY AT LESS THAN 700 VEHICLES PER HOUR, AND IN 2040, PEAK HOUR VOLUMES ARE ANTICIPATED TO BE BELOW 1,500 VEHICLES PER HOUR. THIS ALIGNS WITH THE RTC COMPLETE STREETS MASTER PLAN FOR A 3-LANE SECTION.

SLURRY AND RESTRIPE 6TH STREET FIGURE: SAFETY IMPROVEMENTS SCHEMATIC UNIVERSITY AREA TRANSPORTATION STUDY RENO, NV

PROJECT:	DATE:	VERSION:
092528011	MARCH 22, 2021	4A



#### ENGINEER'S OPINION OF PROBABLE COST

#### PROJECT NAME: 6TH STREET SCHEMATIC-ALTERNATIVE 4 (SLURRY AND STRIPE WITH PARKING BETWEEN BIKE LANE AND TRAVEL LANE) CLIENT: RTC OF WASHOE COUNTY KH JOB NUMBER: 092528011

DATE: 03/22/2021 CREATED BY: IML CHECKED BY: CNH

BID ITEM			ESTIMATED	ESTIMATED	
NO.	BID ITEM	UNIT	QUANTITY	UNIT PRICE	TOTAL
	DESIGN				
D1	PS&E	LS	1	\$148,000	\$148,00
	DESIGN SUBTOTAL				\$148,00
	CONSTRUCTION				
C1	PROJECT MOBILIZATION, DEMOBILIZATION, AND OFF SITE STAGING AREA @ 6%	LS	1	\$19,000	\$19,00
C2	INSTALL THERMOPLASTIC PAVEMENT MARKING ("ONLY")	EA	16	\$350	\$5,60
C3	PLACE 24" STOP BAR THERMOPLASTIC	LF	942	\$18	\$16,95
C4	PLACE RR CROSSING THERMOPLASTIC	EA	2	\$620	\$1,24
C5	INSTALL THERMOPLASTIC PAVEMENT MARKING (YIELD TRIANGLES)	EA	72	\$60	\$4,32
C6	PLACE CROSSWALK THERMOPLASTIC	LF	4,500	\$15	\$67,50
C7	INSTALL THERMOPLASTIC PAVEMENT MARKING (ARROWS LEGEND)	EA	50	\$250	\$12,50
C8	INSTALL THERMOPLASTIC PAVEMENT MARKING (BIKE LEGEND)	EA	19	\$300	\$5,70
C9	PLACE SLURRY SEAL	SF	284,238	\$0.60	\$170,54
C10	MISCELLANEOUS LONGITUDINAL STRIPING (PAINT)	LS	1	\$20,000	\$20,00
C11	CONSTRUCT PCC PEDESTRIAN RAMPS	SF	5,853	\$45	\$263,38
C12	SIGNAL MODIFICIATIONS	LS	1	\$50,000	\$50,00
C13	TRAFFIC CONTROL	LS	1	\$100,000	\$100,00
	CONSTRUCTION SUBTOTAL				\$736,74
	ENGINEERING DURING CONSTRUCTION				
EDC1	CONSTRUCTION SERVICES	LS	1	\$148,000	\$148,00
	EDC SUBTOTAL				\$148,00
	CONTINGENCY				
	CONTINGENCY	1	LS	\$103,300	\$103,30
	PROJECT PLANNING ESTIMATE				\$1,136,044