Master Traffic Impact Study

comments provided on 03/06/23 seg

1. Expand discussion on the requirements/implications to accommodate vehicle queues along Peoria St and the NB left turn vehicle queues at Montview/Fitzsimons. See below for an example
2. provide conceptual layout for Peoria St from 30th Ave to Montview Blvd to show how lanes would be aligned/accomodated.
3. provide conceptual layout for Montview/ Fitzsimonsto show how lanes would be aligned.
4. See comments throughout report

1. Based on discussion on the 3/20/23 call with City of Aurora staff, this report was modified to describe in more detail the constraints in some locations for turn lane lengths.
2. As described in response #1 above, a more detailed description of the constraints was added to the report where necessary to describe the conditions and constraints along Peoria Street. Based on the call with the City, a conceptual improvement exhibit is no longer requested.
3. See comment response #2 above.
4. See comment responses throughout the report. Note, in looking through the updated Montview Plans, only one change was made to this study, which is providing an EB right turn lane at Montview Blvd & Scranton St (#39).

Note, both the previous and the current Montview Plans show Revere (#38) and Uvalda (#42) both as full movement, but this study showed that the left turns out of these roadways onto Montview would not work operationally, so these two intersections are still recommended as 3/4 movement only.

While one additional change that occurred is with Victor Street (#43) providing additional lanes than what is shown in this study, there is discussion added to this report to discuss that two NB through lanes, for example, are not anticipated to be needed on Victor Street, so this study conservatively evaluated it as one through lane instead to show that it can work. In that case, if two through lanes are provided eventually, it should work fine since this analysis showed it could work as just one through lane.

Fitzsimons Innovation Cam

Aurora, Colorado

Prepared for:

Fitzsimons Redevelopment Authority

Kimley»Horn

Fitzsimons Innovation Campus

Aurora, Colorado

Prepared for
Fitzsimons Redevelopment Authority
12635 East Montview Boulevard
Suite 100
Aurora, Colorado 80045

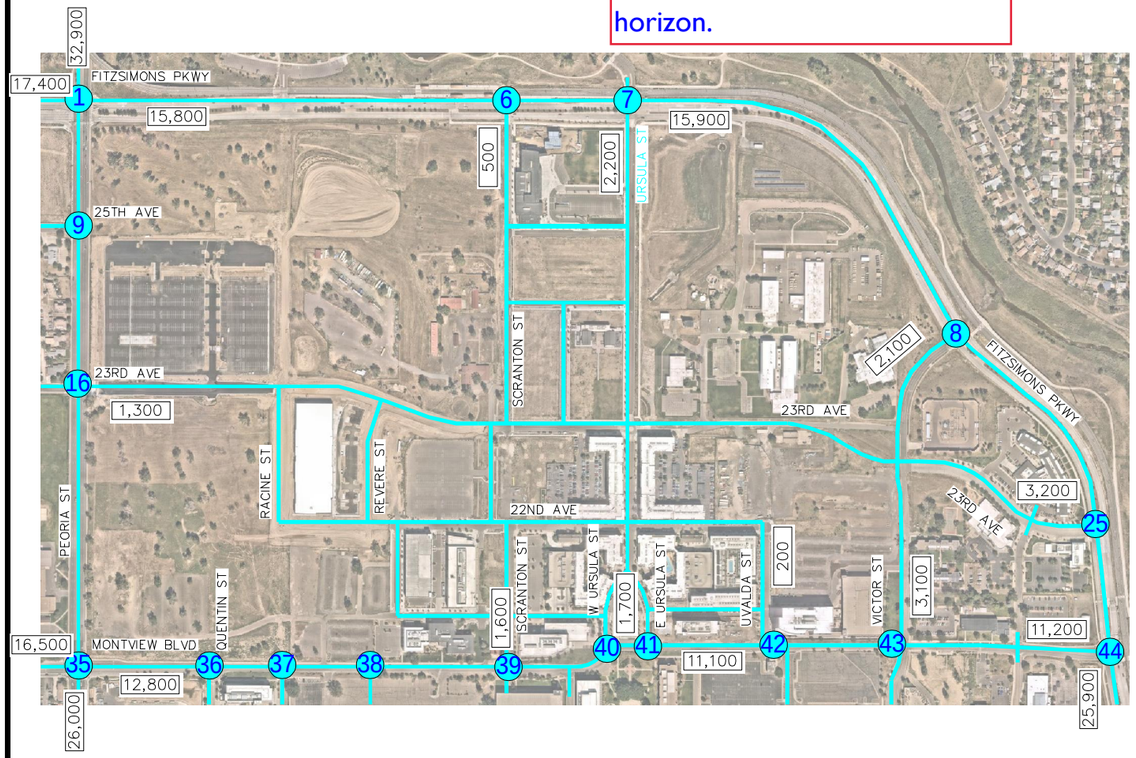
Prepared by
Kimley-Horn and Associates, Inc.
4582 South Ulster Street
Suite 1500
Denver, Colorado 80237
(303) 228-2300

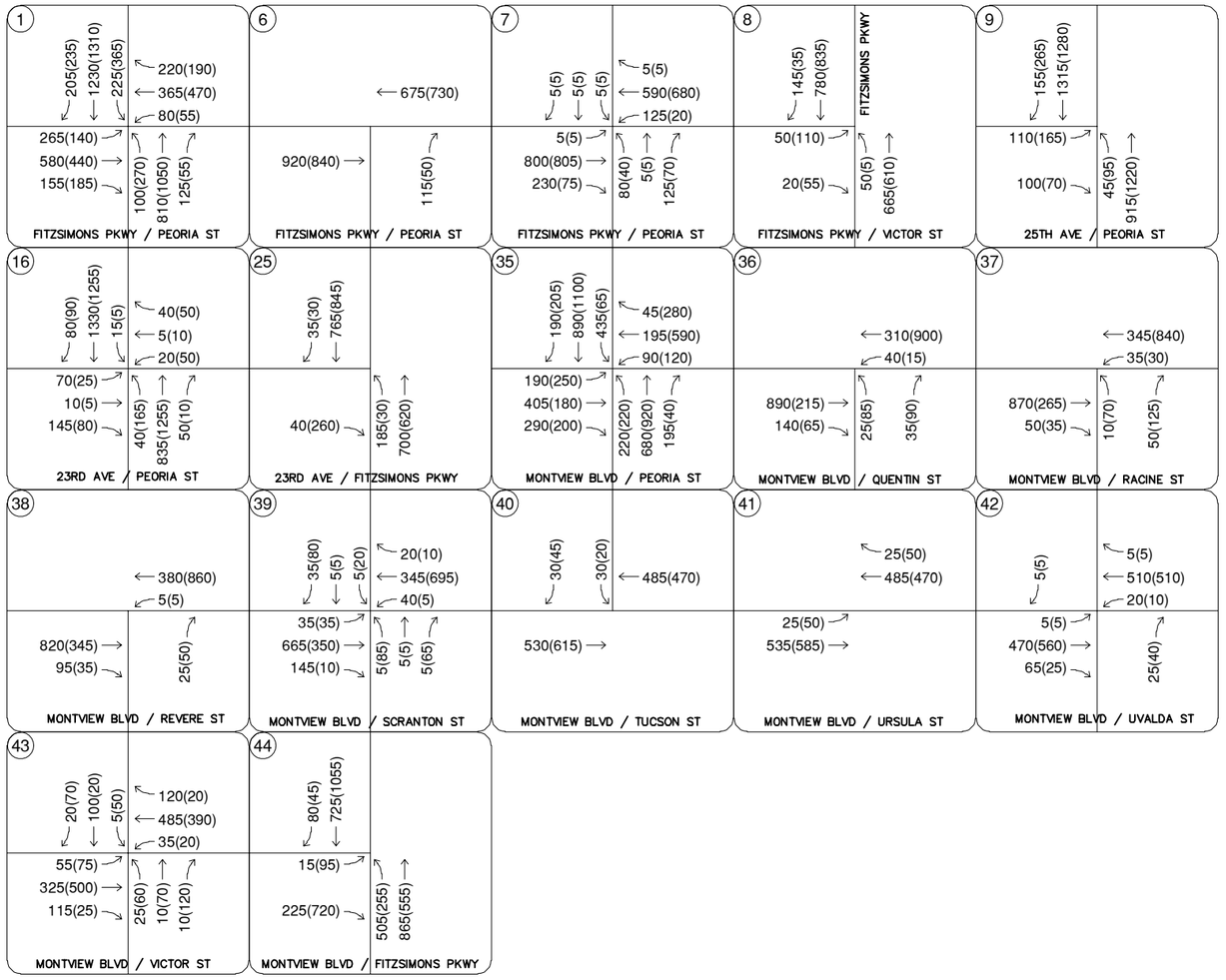
March 2023

Kimley»Horn
NORTH
NTS 196203001

verify 0.5 growth factor was applied to 2022 ADTs to get 2040 ADTs

These traffic volumes were verified that they do grow with the 0.5% annual growth rate. Some minor variation in this exact actual growth rate may occur due to the balancing of volumes between intersections that was conducted for the 2040 horizon.





LEGEND

- X — Existing Study Area Key Intersection
- XXX(XXX) — Weekday AM(PM) Peak Hour Traffic Volumes
- XX,X00 — Estimated Daily Traffic Volume
- Assumed 2040 Background Roadway Network

FITZSIMONS INNOVATION CAMPUS MASTER TRAFFIC IMPACT STUDY
2040 BACKGROUND TRAFFIC VOLUMES – EXTERNAL INTERSECTIONS

FIGURE 7

Kimley»Horn

volumes from these school and hotel traffic studies are conservatively incorporated in this study. All other programmed trip reductions from the original 2017 study were utilized in the updated master traffic impact study and are as follows:

- Office: 22.5%
- Industrial: 9.0%
- Research: 27%
- Residential: 25%

estimated

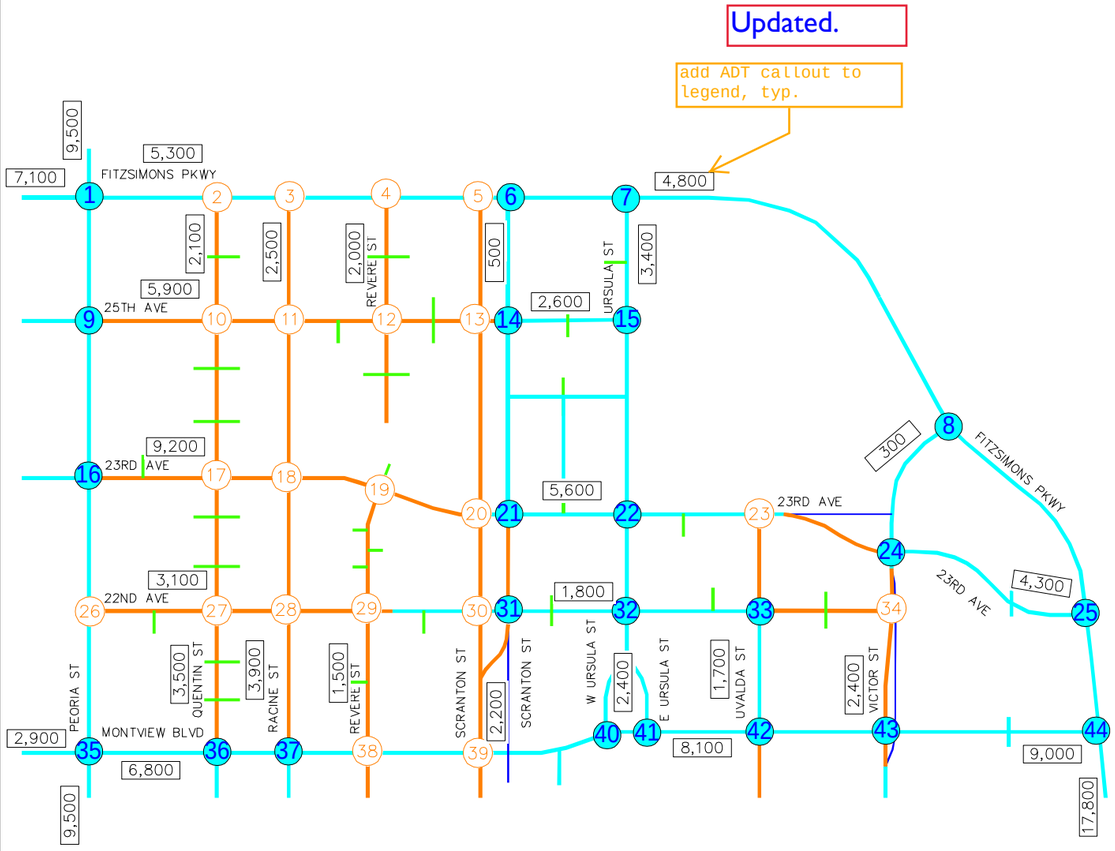
Updated.

Accounting for internal capture, Fitzsimons Innovation Campus is expected to generate approximately 40,590 daily weekday external trips with 5,345 of these trips occurring during the morning peak hour and 5,066 of these trips occurring during the afternoon peak hour. **Table 2** summarizes the estimated external trip generation for the proposed development. Calculations were based on the procedure and information provided in the ITE *Trip Generation Manual, 11th Edition – Volume 1: User's Guide and Handbook*, 2021.

Table 2 – Fitzsimons Innovation Campus External Project Traffic Generation

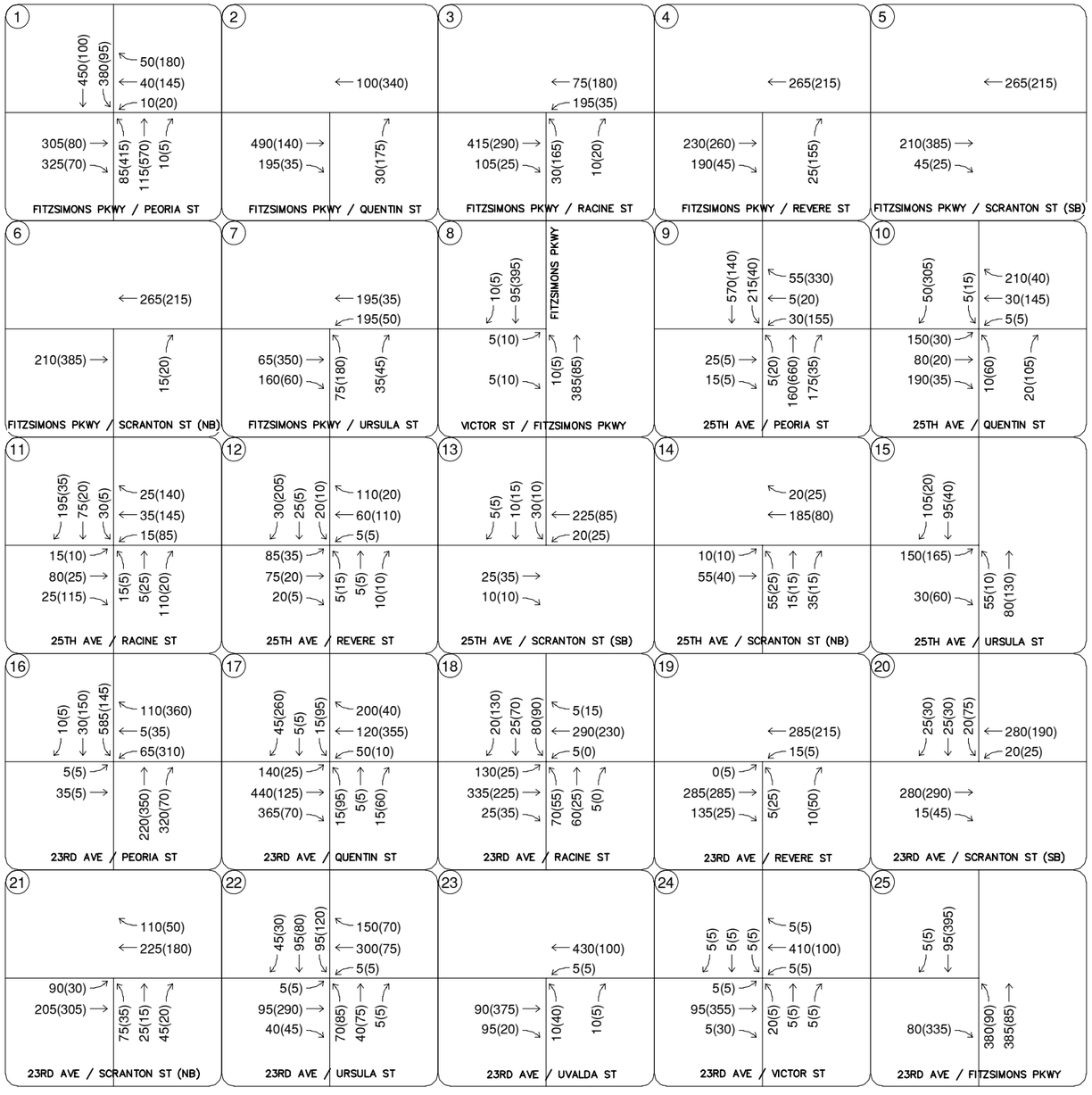
Block	Land Use and Size	Type of Trip	Weekday Vehicle Trips						
			Daily	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
1	General Office Building (ITE 710) - 410,000 SF	Total	4,446	548	75	623	100	490	590
		External	3,446	425	58	483	78	380	458
		Internal Cap.	1,000	123	17	140	22	110	132
2	General Office Building (ITE 710) - 120,000 SF	Total	1,302	160	22	182	29	144	173
		External	1,010	124	17	141	22	112	134
		Internal Cap.	292	36	5	41	7	32	39
3	General Office Building (ITE 710) - 199,000 SF	Total	2,158	266	36	302	49	238	287
		External	1,672	206	28	234	38	184	222
		Internal Cap.	486	60	8	68	11	54	65
4	General Office Building (ITE 710) - 195,000 SF	Total	2,114	260	36	296	48	233	281
		External	1,638	202	28	230	37	181	218
		Internal Cap.	476	58	8	66	11	52	63
5	General Office Building (ITE 710) - 145,000 SF	Total	1,572	194	26	220	36	173	209
		External	1,218	150	20	170	28	134	162
		Internal Cap.	354	44	6	50	8	39	47
6	General Office Building (ITE 710) - 126,800 SF	Total	1,376	170	23	193	31	152	183
		External	1,066	132	18	150	24	118	142
		Internal Cap.	310	38	5	43	7	34	41

Kimley»Horn
NORTH
NTS 196203001



LEGEND

- X — Existing Study Area Key Intersection
- (X) — Future Study Area Key Intersection
- XXX(XXX) — Weekday AM(PM) Peak Hour Traffic Volumes
- Existing Roadway
- Future Roadway
- Assumed Access Locations
- Existing Roadway to be Removed



FITZSIMONS INNOVATION CAMPUS MASTER TRAFFIC IMPACT STUDY
PROJECT TRAFFIC ASSIGNMENT (NORTH)

FIGURE 9

Kimley»Horn

Intersection Turn Lane	Existing Turn Lane Length (feet)	2040 Calculated Queue (feet)	2040 Recommended Length (feet)
Fitzsimons & Victor (#8)			
Eastbound Left	300'	156'	300'
Eastbound Right	C	42'	C
Northbound Left	175'	135'	175'
Southbound Right	275'	0'	275'
25th & Peoria (#9)			
Eastbound Left	C	225'	**225'**
Westbound Left	DNE	229'	**225'**
Northbound Left	225'	127'	**125'**
Southbound Left	DNE	107'	**150'**
23rd & Peoria (#16)			
Eastbound Left	C	114'	**150'**
Westbound Left	DNE	353'	**C**
Northbound Left	200'	156'	200'
Southbound Left	DNE	462'	**475'**
Montview & Peoria (#35)			
Eastbound Left	100'	200'	**200' DL**
Eastbound Right	C	228'	**225'**
Westbound Left	450'	310'	**325' DL**
Westbound Right	125'	302'	**300'**
Northbound Left	250'	200'	**200' DL**
Northbound Right	250'	478'	**475'**
Southbound Left	250'	275'	**275' DL**
Montview & Racine (#37)			
Eastbound Left	DNE	29'	**100'**
Eastbound Right	DNE	13'	**C**
Westbound Left	DNE	24'	**100'**
Northbound Left	100'	99'	100'
Southbound Left	DNE	425'	**C**
Montview & Scranton (#39)			
Eastbound Left	75'	28'	**100'**
Westbound Left	75'	10'	**100'**
Northbound Left	DNE	122'	**125'**
Southbound Left	DNE	243'	**250'**
Montview & W Ursula (#40)			
Southbound Left	C	130'	C
Southbound Right	100'	52'	100'

provide conceptual layout for Peoria St from 30th Ave to Montview Blvd to show how lanes would be aligned. Expand discussion on how improvements would be accomodated

As discussed in the 3/20/23 call, rather than providing an exhibit, the language in this section was modified to discuss areas of possible concern that may need to be monitored through the future and only the most feasible improvements are now recommended.

Intersection Turn Lane	Existing Turn Lane Length (feet)	2040 Calculated Queue (feet)	Re L
Montview & Victor (#43)			
Eastbound Left	DNE	39'	
Westbound Left	DNE	27'	**100'**
Northbound Left	DNE	73'	**100'**
Southbound Left	DNE	251'	**250'**
Montview & Fitzsimons (#44)			
Eastbound Left	150'	135'	150'
Eastbound Right	C/350'	288'	C/350'
Northbound Left	350'	474'	**475' DL**

DNE = Does Not Exist; C = Continuous Turn Lane; DL = Dual Left Turn Lane **Blue Text** = Recommendation; **Red Text** = Storage Deficiency

The vehicle queues are all anticipated to be accommodated within the existing or recommended storage lengths through 2040 with the exception of the northbound left turn queue at the Martin Luther King Jr./Fitzsimons Parkway & Peoria Street (#1) intersection. This is due to intersection spacing, with a 95th percentile northbound left turn queue of up to 466 feet and only approximately 450 feet of storage length available. This storage length of 450 feet can be achieved by providing side-by-side left turn lanes with the southbound left turn lane at 25th Avenue & Peoria Street (#9) to the south of this intersection. The southbound left turn queue at the Martin Luther King Jr./Fitzsimons Parkway & Peoria Street (#1) intersection may be up to 330 feet by the 2040 horizon, and it is anticipated this queue can be accommodated within a recommended inner left turn lane of approximately 225 feet in length and a proposed continuous southbound left turn lane. To achieve this, the north leg of intersection may need to be realigned slightly to west in between the existing RTD light-rail bridge piers. This improvement would likely require additional right-of-way acquisition and the feasibility of this improvement would need to be further evaluated in the future.

With the proposed side-by-side left turn lanes of the dual northbound left turn lanes at the Martin Luther King Jr./Fitzsimons Parkway & Peoria Street (#1) intersection, the southbound left turn lane at 25th Avenue & Peoria Street (#9) should provide 150 feet in length, thus with the side-by-side turn area only occurring for a portion of this segment along Peoria Street. The southbound left turn queue at 23rd Avenue & Peoria Street (#16) may be up to 462 feet by the 2040 horizon. With a total length of approximately 700 feet between 23rd Avenue and 25th Avenue, it is recommended this southbound left turn lane provide 475 feet in length and the northbound left

Discussion about the Sand Creek Bridge was added to this section.

expand discussion on the improvements required. See below for example:

Reconstruct and widen Peoria Street/Sand Creek bridge from four lanes to six lanes. The 52' wide Peoria Street Sand Creek Bridge is currently a four lane cross section which creates a bottleneck for the six lane street section north and south of the bridge. Projected daily 2015 traffic along Peoria Street is approximately 40,000 vehicles per day which is well above the typical planning level capacity of 30,000 to 32,000 vehicles per day for four lane roadways

turn lane at 25th Avenue & Peoria Street (# le d taper.

multiple accesses would need to be right in-right out only

Discussion was added to this section about the additional possible driveway restrictions.

The eastbound left turn queue at the Montview Boulevard & Peoria Street (#35) intersection may be up to 200 feet by 2040. Because of this queue, the existing full movement T-intersection at Montview Boulevard and Paris Street to the west of Peoria Street may need to be considered for possible restriction to right-in/right-out turning movements only, which will improve the safety of this area while also allowing space for anticipated queues on the west leg of this intersection. Otherwise, these vehicle queues would likely only extend past this intersection for brief moments of each cycle length within a 30-minute timeframe per day. The northbound right turn queue at this intersection may extend up to 478 feet by 2040. With the recommended turn lane length of 475 feet, this can be achieved by extending the existing northbound right turn lane further to the south. If this turn lane is extended to this length, it would be recommended that the existing north access at the Veterans Community Living Center could be considered for possible restriction to right-in/right-out movements only.

right in only

Per discussion on the call, this access is still described as providing right-in/right-out movement rather than right-in only.

The northbound left turn queue at Montview Boulevard & Fitzsimons Parkway (#44) may extend to 474 feet in length by 2040 with a recommended dual turn lane length of 475 feet, extending from the existing 350 feet in length today. This could be accomplished by having the dual southbound left turn lanes at 17th Place & Fitzsimons Parkway shift to the existing chevron-striped pavement to the west of the current left turn lanes.

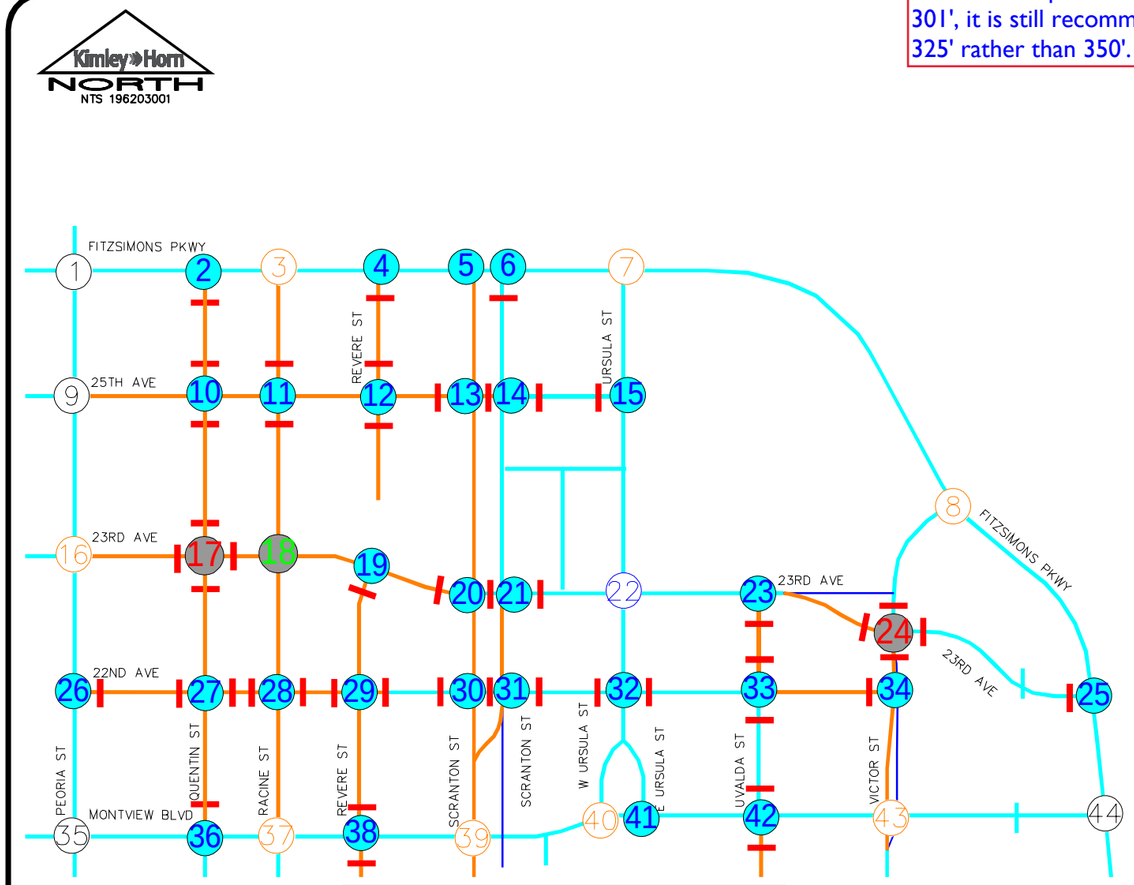
Fizsimons Parkway would need to be widened. Expand discussion on the widening requirements/implications

5.4 Master Traffic Impact Study Comparison

Several iterations of master traffic impact studies have been conducted for this study a including the 2017 *Fitzsimons Redevelopment Authority Traffic Study* completed by FHU in 2 an updated iteration conducted by Kimley-Horn in January 2021 called *Fitzsimons Innov Campus* and now with this updated study. This study is intended to provide a detailed analys projected land uses and the proposed roadway network to allow for future developments w this study area to develop based on traffic compliance to the recommendations proposed in master study. Of note, the proposed roadway network in this study is in alignment with the January 2021 Kimley-Horn study with the exception of the lane configuration along Montview Boulevard between Racine Street (#37) and Victor Street (#43) which has been modified to primarily provide only one through lane in each direction along Montview Boulevard rather than two through lanes

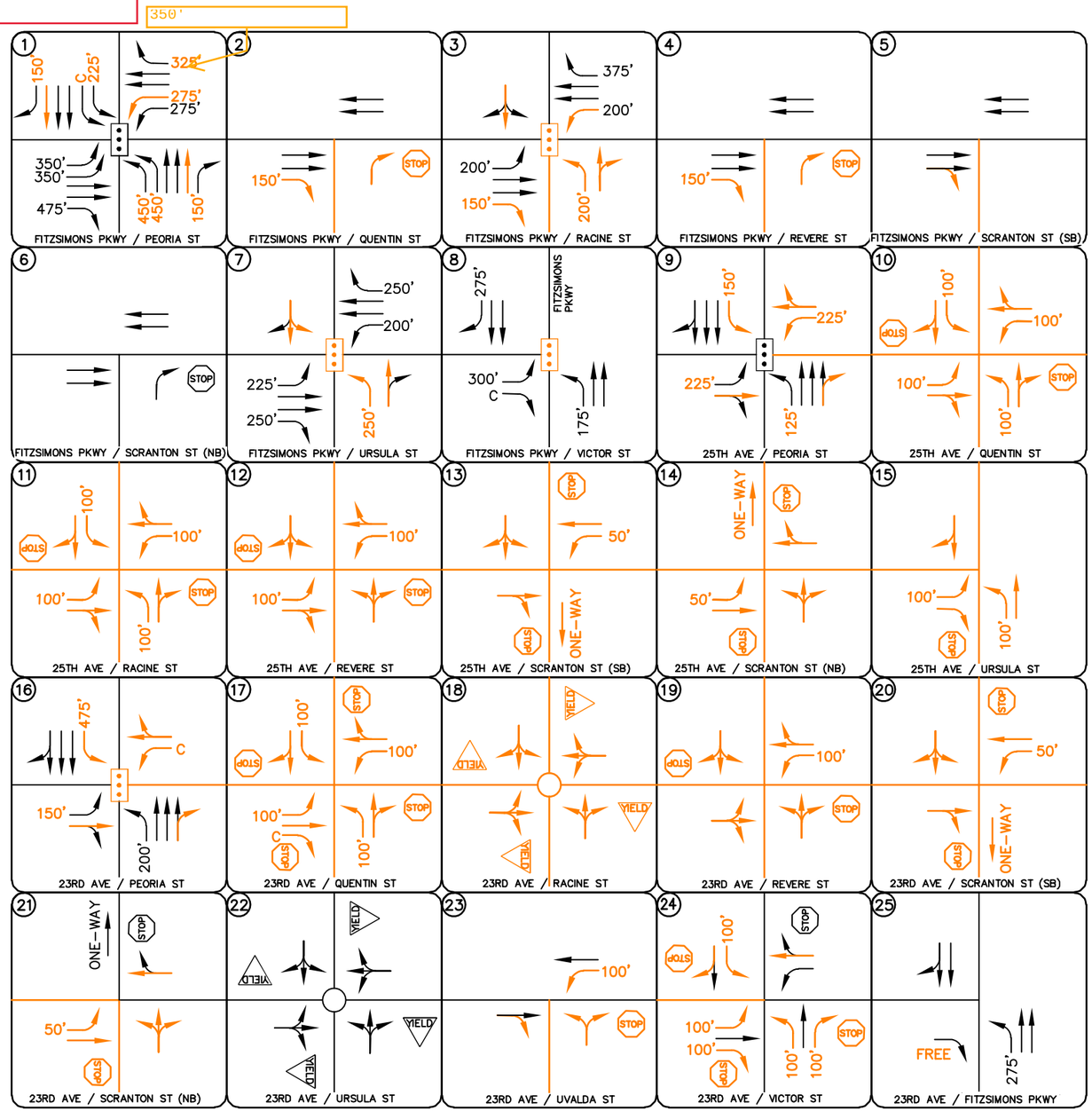
Per discussion on the call, this was modified to describe the constraint because of the back-to-back left turn lanes and that it should be monitored as the area develops.

Because the queues are only about 301', it is still recommended as only 325' rather than 350'.



LEGEND

- Existing Traffic Signal
- Proposed Traffic Signal
- Existing Roundabout Control
- Two Way Stop Control
- All–Way Stop Control
- Roundabout Control
- Signalized Intersection
- Roundabout Control
- Stop Controlled Approach
- Stop Bar
- Improvement
- Future Roadway
- Existing Roadway
- Existing Roadway to be Removed



FITZSIMONS INNOVATION CAMPUS MASTER TRAFFIC IMPACT STUDY
2040 RECOMMENDED GEOMETRY AND CONTROL (NORTH)

FIGURE 13